It is my pleasure to present the Annual Report (2016–2017) of the Department of Chemistry, Institute of Chemical Technology. The Department continues to grow. To the M.Sc. programme of the Department, 20 admissions were made. Six research scholars successfully completed their doctoral work and awarded the Ph. D. degree. Presently 52 doctoral candidates are enrolled in the Department.

The research output of the Department continues to be commendable. The faculty members published 66 peer-reviewed research papers in reputed international journals, in addition to contributing to book chapters and patents. Both the faculty members and students made a number of oral and poster presentations in conferences and workshops at both national and international platforms, thus benefiting from the scientific interactions.

The performance of the M.Sc. and PhD students in curricular and extra-curricular activities was commendable and brought laurels to the Department. It is a matter of pride that many of the M.Sc and PhD students of the Department have been selected by reputed universities and Institutions from India and abroad for further studies and for suitable employment.

The Department continues with the commitment in training the staff and research students of ICT with the support of the TEQIP programme and various endowment funds. “Rasayanam”, the inter-collegiate annual programme and Chem. Careers (an event organised for the benefit of the college students of the city and supported by RSC), were met with overwhelming response. This was organised on 12th and 13th January 2017. The Department also arranged an annual get together in the month of May in which a warm farewell was given to the outgoing students of the year. The Department also organised various invited lectures by experts for the benefit of the students of the Institute.

We are thankful to all the faculty members, support staff, visiting faculty and the students of the Department for their commitment and contribution in all the activities. With all this support, Department of Chemistry at ICT will continue to thrive to excel in teaching and research that would lead to the betterment of society and mankind.

PROFESSOR R. V. JAYARAM
M.Sc., Ph.D., F. M. A. Sc.
Professor of Physical Chemistry and Head of Department
Email: rv.jayaram@ictmumbai.edu.in
Phone: 91-2222-33612601

ABOUT THE DEPARTMENT
PROFESSOR R. V. JAYARAM  
M.Sc., Ph.D., F. M. A. Sc.  
Professor of Physical Chemistry and  
Head of Department

ACADEMIC COURSES TAUGHT

Undergraduate

<table>
<thead>
<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Chem. Engg</td>
<td>II</td>
<td>Physical and Analytical Chemistry (lab course)</td>
</tr>
<tr>
<td>B.Tech</td>
<td>I</td>
<td>Physical and Analytical Chemistry (lab course)</td>
</tr>
<tr>
<td>B.Pharm</td>
<td>I</td>
<td>Organic Chemistry (lab course)</td>
</tr>
</tbody>
</table>

Postgraduate

<table>
<thead>
<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
</tr>
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<tbody>
<tr>
<td>MSc. Chemistry</td>
<td>I</td>
<td>Chemical kinetics and phase equilibria</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>Physical Chemistry Lab –I</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>Quantum mechanics, Physical chemistry lab II</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>Solid state chemistry</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>Catalysis</td>
</tr>
<tr>
<td>M. Tech. Green Tech.</td>
<td>II</td>
<td>Catalysis II</td>
</tr>
</tbody>
</table>

RESEARCH INTERESTS
- Heterogeneous catalysis
- Green Chemistry
- Photocatalysis
- Functional polymers
- Adsorption techniques for removal of water pollutants
- Enzyme catalysis

RESEARCH OUTPUT
A] Current research students
- M. Tech.- 02
- M.Sc. (Chemistry)- 02
- Ph. D.- 13
- PDF- 01
- UG- 03

B] Research Publications
(from 1st July 2016 to 30th June 2017)- 04

C] Sponsored Projects
(from 1st July 2016 to 30th June 2017)- 02

PROFESSIONAL ACTIVITIES:
- Faculty Member, NIUS Programme, HBCSE.
- Member, Board of Examiners, Indian National Chemistry Olympiad (INChO)
- Fellow of Maharashtra Academy of Science
- Resource person, Orientation-cum-selection Camp for selecting Indian Team for International Chemistry Olympiad.
- Member, Scientific committee, 48th International Chemistry Olympiad, July 2016 (Tibilis, Georgia)
IN-HOUSE RESPONSIBILITIES

- Coordinator- Green Technology programmes
- Warden- Hostel No. 2
- Coordinator – UGC –SAP (DRS-I), Department of Chemistry
- Chairperson, Research Committee, Green Technology
- Chairperson, Research Committee, Chemistry
- Member, Examination committee
- Member secretary, Faculty Common Room
- Member – Exam Committee
- Member – UGPC, PGPC

RESEARCH INTERESTS

- Homogeneous catalysis, Reaction kinetics and mechanism
- Preparation and Characterization of organometallic complexes.
- Catalyst-product separation techniques in homogeneous catalysis such as biphasic catalysis, supported liquid phase catalysis.
- Ultrasound assisted organic reactions and catalysis.
- C-C, C-N coupling reactions for organic synthesis.
- Microwave assisted organic reactions and catalysis.
- Preparation and application of ionic liquids for organic synthesis.
- Catalysis and reactions in supercritical carbon dioxide.
- Carbon dioxide fixation into valuable chemicals
- Carbon monoxide fixation into valuable chemicals.
- Hydroformylation for synthesis of fine chemicals.
- Polycarbonates synthesis via organometallic complexes.
- Heterogeneous catalysis.
- Bio-catalysis- Mainly study of the behavior of various enzyme in organic solvents and neoteric solvents like ionic liquids, supercritical carbon dioxide for organic synthesis and enzyme immobilization.
- Synthesis of nano-materials

PROFESSOR BHALCHANDRA M. BHANAGE
M.Sc., PhD (Sci.)
Professor of Industrial &Engg. Chemistry &
Dean (Infrastructure and Campus Development)
Department of Chemistry
Email: bm.bhanage@gmail.com
Phone: 91-22- 33612603

ACADEMIC COURSES TAUGHT
UNDERGRADUATE

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<thead>
<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
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<tr>
<td>S.Y.B.Tech</td>
<td>III</td>
<td>Green Chemistry</td>
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POSTGRADUATE

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<thead>
<tr>
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<tr>
<td>M.Sc.</td>
<td>III</td>
<td>Organometallic Chemistry</td>
</tr>
<tr>
<td>M. Tech Green Tech.</td>
<td>I</td>
<td>Industrial Catalysis - I</td>
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ACADEMIC COURSES TAUGHT

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<td>S.Y.B.Tech</td>
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<td>Green Chemistry</td>
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POSTGRADUATE

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<td>Organometallic Chemistry</td>
</tr>
<tr>
<td>M. Tech Green Tech.</td>
<td>I</td>
<td>Industrial Catalysis - I</td>
</tr>
</tbody>
</table>
& exploration of the nanomaterials synthesized as catalysts for organic synthesis.

- Green chemistry- Development of environmentally benign synthetic procedures for organic synthesis.
- Hydrogenation reactions for organic synthesis.
- Asymmetric catalysis for organic synthesis.

RESEARCH OUTPUT

A] Current research students  
M. Tech. - 1  
M.Sc. (By Research)- 0  
M.Sc. (Chemistry)- 2  
Ph. D.- 20  
Others, if any- 1 RA/ 2 Summer Trainee /1 postdocs

B] Research Publications  
(from 1st July 2016 to 30th June 2017)- 39  
C] Patents  
(from 1st July 2016 to 30th June 2017)- 4  
D] Book Chapters  
(from 1st July 2016 to 30th June 2017)- 3  
E] Sponsored Projects  
(from 1st July 2016 to 30th June 2017)- 2

PROFESSIONAL ACTIVITIES:

- Catalysis Science & Technology (Royal Society of Chemistry Journal)

PROFESSOR SHRINIWAS D. SAMANT  
M. Sc., Ph. D.  
Professor of Organic Chemistry  
Department of Chemistry  
Email: samantsd.ict@gmail.com  
Phone: 91-22--33612606

ACADEMIC COURSES TAUGHT

Undergraduate

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<th>Class</th>
<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>B. Chem. Engg.</td>
<td>II</td>
<td>Organic Chemistry (Theory)</td>
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Postgraduate

<table>
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<tr>
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<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>M.Sc. (Chemistry)</td>
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<td>Organic Reaction Mechanism (Theory)</td>
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<tr>
<td>M.Sc. (Chemistry)</td>
<td>II</td>
<td>Stereochemistry (Theory)</td>
</tr>
<tr>
<td>M.Sc. (Chemistry)</td>
<td>III</td>
<td>Advanced Spectroscopy (Theory)</td>
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<tr>
<td>M.Sc. (Chemistry)</td>
<td>I</td>
<td>Organic chemistry laboratory</td>
</tr>
<tr>
<td>PhD</td>
<td>--</td>
<td>Research Methodology</td>
</tr>
</tbody>
</table>
RESEARCH INTERESTS
- Mechanistic organic chemistry
- Synthesis of biologically interesting compounds
- Organic sonochemistry
- Catalysis
- New methods of organic synthesis

RESEARCH OUTPUT
A] Current research students
M.Sc. (Chemistry)- 2  
Ph. D.- 2
B] Research Publications
(from 1st July 2015 to 30th June 2016)- 2

PROFESSIONAL ACTIVITIES:
Activities outside ICT:
- Member, National Steering Committee, Science and Mathematics Olympiads
- Member, Academic Board, Ruia College (Autonomous)
- Member, Chemistry Research Board, The IIS University, Jaipur.
- Member, Advisory Committee, Star College, DBT, Ruia College, Mumbai.
- Member, Advisory Committee, Star College, DBT, Jhunjhunwala College
- Member, Advisory Committee, Skill Development Programmes, Ruia College
- Member, IQAC, Ruia College, Mumbai
- Member, Statutes Committee, Dr. Babasaheb Ambedkar Technological University, Lonere, Maharashtra
- Member, Association of Chemistry Teachers
- Member, Catalysis Society of India
- Member, Society of Materials Chemists
- Member, Asiatic Society, Mumbai

Office bearers of professional bodies:
- President, Association of Chemistry Teachers

IN-HOUSE RESPONSIBILITIES
- Wardenship /
- Member, Board of Management, ICT, Mumbai
- Member, Research Committee, Department of Chemistry, ICT, Mumbai.

PROFESSOR JAYASHREE MILIND NAGARKAR
M. Sc., Ph. D.
Professor of Chemistry
Department of Chemistry
Email: jm.nagarkar@ictmumbai.edu.in
Phone: +91-22-33612608

ACADEMIC COURSES TAUGHT
Undergraduate

<table>
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<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>F.Y.B. Tech.</td>
<td>I</td>
<td>Analytical Chemistry practical</td>
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<tr>
<td>F.Y.B. Chem. Engg.</td>
<td>II</td>
<td>Analytical Chemistry practical</td>
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Postgraduate

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<th>Semester</th>
<th>Course</th>
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<tr>
<td>M.Sc.(Chem.)</td>
<td>I</td>
<td>Kinetics and Phase Equilibria</td>
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<tr>
<td>M.Sc.(Chem.)</td>
<td>II</td>
<td>Advanced Thermodynamics and Electrochemistry</td>
</tr>
<tr>
<td>M.Sc.(Chem.)</td>
<td>IV</td>
<td>Electrochemistry</td>
</tr>
</tbody>
</table>
RESEARCH INTERESTS
• Homogeneous catalysis
• C-C, C-N coupling reactions for organic synthesis
• Heterogeneous Catalysis
• Synthesis and Exploration of Nanomaterials synthesized as catalysts for organic synthesis
• Green chemistry development of environmentally benign synthetic procedures for organic synthesis
• Emulsifications of Vegetable oils

RESEARCH OUTPUT
A] Current research

students
M.Sc. (Chemistry)- 02
Ph. D.- 07

B] Research Publications
(from 1st July 2016 to 30th June 2017)- 06

PROFESSIONAL ACTIVITIES:
• Life member, Indian Society of surface Science & Technology
• Life member, Indian Women Scientist Association
• Life Member, Catalyst Society of India
• Life Member, Society of Advancement of Electrochemical Science & Technology

• Member, Board of Studies, University of Goa

IN-HOUSE RESPONSIBILITIES
• Incharge, Art Club TA
• Incharge, Departmental Colloquium, Department of Chemistry, ICT
• Member, PG Admissions Committee
• Member, Woman Cell, ICT
• Member, Departmental Safety Committee
• Co-ordinator Safety Workshop programme of the Institute.

Dr. ANANT R. KAPDI
M.Sc. Ph.D.
UGC-FRP Assistant Professor
Department of Chemistry
Email: ar.kapdi@ictmumbai.edu.in
Phone: 91-22-33612609

ACADEMIC COURSES TAUGHT
Undergraduate

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<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
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<tr>
<td>F.Y. B.Chem. Engg</td>
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<td>Organic Chemistry</td>
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<tr>
<td>F.Y. B. Chem. Engg</td>
<td>I</td>
<td>Organic Chemistry Practicals</td>
</tr>
<tr>
<td>F.Y. B. Chem. Engg</td>
<td>I</td>
<td>Organic Chemistry</td>
</tr>
<tr>
<td>F.Y. B. Chem. Engg</td>
<td>I</td>
<td>Organic Chemistry Practicals</td>
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Postgraduate

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<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>M. Sc. Chemistry</td>
<td>I</td>
<td>Heterocyclic Chemistry</td>
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<tr>
<td>M. Sc. Chemistry</td>
<td>III</td>
<td>Analytical Practicals</td>
</tr>
<tr>
<td>M. Sc. Chemistry</td>
<td>IV</td>
<td>Natural Products</td>
</tr>
</tbody>
</table>
RESEARCH INTERESTS

- Homogeneous catalysis using palladium and nickel based complexes.
- Heterogenization of the complexes on solid support
- C-H bond functionalization
- Green Technology approaches for synthesis
- Microwave assisted organic synthesis
- Nucleoside Modification and Applications

RESEARCH OUTPUT

A] Current research students
M.Sc. (Chemistry) - 2
Ph.D. - 11

B] Research Publications
(from 1st July 2016 to 30th June 2017) - 2

C] Book Chapters
(from 1st July 2016 to 30th June 2017) - 3

D] Sponsored Projects
(from 1st July 2015 to 30th June 2016)
5 Government-funded
4 Private sponsors

a) Secretary of Faculty forum
ICT Mumbai

b) Convener of Freshers events for the year 2016-17.

c) Committee member for Purchase Committee, ICT Mumbai

d) Committee member for Institutional Handbook Committee: Compilation, Designing, Detailing and Final Compilation handled.

e) Committee member for safety committee for Department of Chemistry 2016-17.

ACADEMIC COURSES TAUGHT

Undergraduate

<table>
<thead>
<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>FY B. Chem. Engg.</td>
<td>I</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>FY B. Tech.</td>
<td>II</td>
<td>Organic Chemistry</td>
</tr>
<tr>
<td>FY B. Tech</td>
<td>II</td>
<td>Organic Chemistry Laboratory</td>
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Postgraduate

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<th>Semester</th>
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<tr>
<td>MSc</td>
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<td>Organic Synthesis</td>
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<tr>
<td>MSc</td>
<td>III</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>MSc</td>
<td>IV</td>
<td>Bioorganic Chemistry</td>
</tr>
</tbody>
</table>

RESEARCH INTERESTS

- New synthetic methodologies development
- Total Synthesis of Natural Products & drugs
- Catalysis for Organic Synthesis
- Biomimetic Organic Synthesis
Dr. KAUSTUBH JOSHI  
M.Sc., Ph.D.  
DST Ramanujan Faculty  
Department of Chemistry  
Email: ka.joshi@ictmumbai.edu.in  
Phone: 022 33612614

ACADEMIC COURSES TAUGHT

Undergraduate

<table>
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<th>Class</th>
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<th>Course</th>
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<tbody>
<tr>
<td>B. Chem. Engg</td>
<td>I</td>
<td>Physical Chemistry (Theory)</td>
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<tr>
<td>B. Pharm.</td>
<td>II</td>
<td>Physical Pharmacy (Theory)</td>
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</table>

Postgraduate

<table>
<thead>
<tr>
<th>M. Sc. (Chemistry)</th>
<th>II</th>
<th>Chemical Engineering Component (Laboratory)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>III</td>
<td>Computational Chemistry (Laboratory)</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>Computational Chemistry (Theory)</td>
</tr>
</tbody>
</table>

RESEARCH INTERESTS

- Cycloaddition reactions
- Organic Reaction mechanism
- Bone Health
- Python based GUI development
- NNRT based Anti-HIV drug designing
- Targets for Neurodegenerative diseases
- Silicon Chemistry

A] Current research students
M.Sc. (Chemistry)- 01  
Ph. D.- 02

B] Research Publications
(from 1st July 2016 to 30th June 2017)- 01
ACADEMIC COURSES TAUGHT

Undergraduate

<table>
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<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>F.Y. B.Tech.</td>
<td>I</td>
<td>Physical Chemistry – 1</td>
</tr>
<tr>
<td>F. Y. B. Tech.</td>
<td>I</td>
<td>Physical and Analytical Chemistry Practicals</td>
</tr>
<tr>
<td>F. Y. B. Tech.</td>
<td>II</td>
<td>Physical Chemistry – II</td>
</tr>
<tr>
<td>F. Y. B. Pharm.</td>
<td>II</td>
<td>Physical Chemistry and Physical Pharmacy</td>
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Postgraduate

<table>
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<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>M. Sc. Chemistry</td>
<td>I</td>
<td>Instrumental Methoda of Analysis</td>
</tr>
</tbody>
</table>

RESEARCH INTERESTS

- Mechanistic investigation of organic reactions
- Effect of reaction media on the selectivity and reactivity
- “on water” chemistry
- Space and time-resolved study of reactions in confined media
- Vibrational spectroscopy and microspectroscopy
- Mechanistic studies of asymmetric amplification
- Interfacial reactions

RESEARCH OUTPUT

A] Current research students
- M.Sc. (Chemistry)- 02
- Ph. D.- 04
- Others, if any- 01

B] Research Publications
- (from 1st July 2016 to 30th June 2017)- 01

C] Sponsored Projects (from 1st July 2016 to 30th June 2017)- 02

IN-HOUSE RESPONSIBILITIES

- Member, Student Diary Committee
- Member, Annual Report / ICT Diary/ Posters Committee
- Member, NBA / NAAC Documentation Committee
Dr. DIPANWITA DAS  
M.Sc. Ph.D.  
DST-INSPRE Faculty  
Department of Chemistry  
Email: dr.das@ictmumbai.edu.in  
Phone: 91-22-33612616

### ACADEMIC COURSES TAUGHT

#### Undergraduate

<table>
<thead>
<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>F. Y. B. Pharm</td>
<td>I</td>
<td>Inorganic Chemistry Theory</td>
</tr>
<tr>
<td>F.Y.B.Tech</td>
<td>I</td>
<td>Analytical Physical Chemistry Lab</td>
</tr>
<tr>
<td>F.Y.B.Pharm</td>
<td>II</td>
<td>Physical Pharmacy Lab</td>
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#### Postgraduate

<table>
<thead>
<tr>
<th>Class</th>
<th>Semester</th>
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<tbody>
<tr>
<td>M.Sc. Chemistry</td>
<td>I</td>
<td>Inorganic Chemistry Lab</td>
</tr>
<tr>
<td>M.Sc. Chemistry</td>
<td>II</td>
<td>Chemistry of Transition Elements, Theory</td>
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</table>

### RESEARCH INTERESTS

- Catalytic oxygen reduction reaction by metal organic frameworks
- Molecular recognition and sensing
- Photochromic metal organic frameworks
- Inorganic photo physics and bio-sensing
- DNA binding and photocleavage

### RESEARCH OUTPUT

A] Current research students

- M.Sc. (Chemistry)- 2
- Ph. D.- 4
- Others, if any- 1 (Project Assistant)

B] Research Publications

(from 1st July 2016 to 30th June 2017)- 2

C] Sponsored Projects (from 1st July 2016 to 30th June 2017)- 2

### PROFESSIONAL ACTIVITIES:

- Member of Royal Society of Chemistry
**Dr. SANGHAMITRA CHATTERJEE**  
M.Sc., Ph.D  
DST INSPIRE Faculty  
Department of Chemistry  
Email: sk.chatterjee@ictmumbai.edu.in  
Phone: 022-33611144

**ACADEMIC COURSES TAUGHT**

**Undergraduate**

<table>
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<tr>
<th>Class</th>
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<tbody>
<tr>
<td>F.Y. B. Tech.</td>
<td>I</td>
<td>Analytical Chemistry (Theory)</td>
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<tr>
<td>F.Y. B. Tech.</td>
<td>I</td>
<td>Physical/Analytical Chemistry (Laboratory)</td>
</tr>
<tr>
<td>F.Y. B. Chem. Engg.</td>
<td>II</td>
<td>Analytical Chemistry (Theory)</td>
</tr>
<tr>
<td>F.Y. B. Chem. Engg.</td>
<td>II</td>
<td>Physical/Analytical Chemistry (Laboratory)</td>
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</table>

**RESEARCH INTERESTS**

- Organic Electrochemistry
- Biomedical Applications of Nanomaterial Modified Sensors
- Materials Science and Nanotechnology
- Electrochemical Sensing Techniques for Clinical Diagnostics and Environmental Monitoring
- Development of Sensors for Biomolecules, Drugs and Doping Agents
- Biosensors and Arrays
- Electrochemical catalysis

**RESEARCH OUTPUT**

A] **Current Research Students**  
M.Sc. (Chemistry- 02  
Ph. D.- 03

B] **Research Publications**  
(from 1st July 2016 to 30th June 2017)- 01

C] **Sponsored Projects**  
(from 1st July 2016 to 30th June 2017) 01

---

**Dr. P. M. MORE**  
MSc. PhD.  
Assistant Professor  
Department of Chemistry  
Email: pm.more@ictmumbai.edu.in  
extension preferred- 91-22-33612605

**ACADEMIC COURSES TAUGHT**

**Undergraduate**

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<tr>
<td>B. Chem. Engg.</td>
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<td>Analytical Chemistry Theory</td>
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**Postgraduate**

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<tbody>
<tr>
<td>MSc. (Chem)</td>
<td>I</td>
<td>Physical Chemistry Lab.</td>
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</table>
RESEARCH INTERESTS
- Environmental Catalysis,
- Complete oxidation of CO and volatile organic compounds into CO2
- Selective oxidations of hydrocarbon/alcohol by heterogenous catalysis
- Development of method for sample analysis

RESEARCH OUTPUT
A] Current research students
M.Sc. (Chemistry)- 02
Ph. D.- 02
B] Sponsored Projects (from 1st July 2016 to 30th June 2017)- 02

IN-HOUSE RESPONSIBILITIES
- Comittee member of Shri G.M.Abhyankar Students’ Travel Assistance Award

Dr. S.G. DAWANDE
M. Sc., Ph.D
Assistant Professor
Department of Chemistry
Email: sg.dawande@ictmumbai.edu.in
Phone: 91-22-33611145

ACADEMIC COURSES TAUGHT

Undergraduate

<table>
<thead>
<tr>
<th>Class</th>
<th>Semester</th>
<th>Course</th>
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<tbody>
<tr>
<td>F.Y. B. Pharm</td>
<td>I</td>
<td>Organic Chemistry-I</td>
</tr>
<tr>
<td>F.Y. B. Pharm.</td>
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<td>Organic Chemistry Laboratory</td>
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<tr>
<td>F.Y. B. Pharm.</td>
<td>II</td>
<td>Organic Chemistry II</td>
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<tr>
<td>F.Y. B. Chem. Eng.</td>
<td>II</td>
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<tr>
<td>F.Y. B. Tech.</td>
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Postgraduate

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<tr>
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<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>M. Sc. (Chemistry)</td>
<td>II</td>
<td>Organic Chemistry Laboratory</td>
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RESEARCH INTERESTS
- Transition Metal catalysis
- Organocatalysis
- Natural Product Synthesis
- Green Chemistry

RESEARCH OUTPUT
A] Current research students
M.Sc. (Chemistry)- 01
Ph. D.- 01
Others, if any- 01
B] Research Publications (from 1st July 2016 to 30th June 2017)- 01
C] Sponsored Projects (from 1st July 2016 to 30th June 2017)- 02
SUPPORT STAFF

Mr. P. S. Gaikwad  
Lab Assistant

Mr. V. R. Haval  
Lab Assistant

Mr. R. M. Mhatre  
Lab Assistant

Mr. A. P. Patil  
Lab Assistant

Mr. A. H. Awale  
Lab Attendant

Mr. S. P. Chavan  
Lab Attendant

Mr. S. B. Khapne  
Lab Attendant

Mr. B. V. Tilve  
Lab Attendant

SUPPORT STAFF - SUPER ANNUATION

Mr. S. B. Khapne  
Mr. S. b. Khapane (Lab Attendant)  
Organic Chemistry Laboratory  
Date of Retirement - 30/11/2016  
Date of Farewell by Department - 29/11/2016
## VISITING FACULTY

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Course</th>
<th>Class/Semester</th>
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</thead>
<tbody>
<tr>
<td>Prof. P. A. Sathe</td>
<td>Department of Chemistry, Ram Narayan Ruia Autonomous College, Mumbai-400019</td>
<td>Physical Chemistry-II</td>
<td>S Y B Tech. (Pharma) Semester- II</td>
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<tr>
<td></td>
<td></td>
<td>Electrochemistry and Advance Thermodynamics</td>
<td>M Sc. Chemistry Semester- II</td>
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<tr>
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<td></td>
<td>Solid State Chemistry</td>
<td>M Sc- Chemistry Semester – III</td>
</tr>
<tr>
<td>Dr. Lakshmy Ravishankar</td>
<td>Department of Chemistry, V.G.Vaze College, Mulund, Mumbai.</td>
<td>Radicals, Photochemistry &amp; Pericyclic reactions</td>
<td>M Sc- Chemistry Semester – I</td>
</tr>
<tr>
<td>Dr. Mandal</td>
<td>Head, Materials Section Chemical Engineering Division Bhabha Atomic Research Centre Trombay, Mumbai, PIN: 400085</td>
<td>Fundamentals of Fluid Flow and Heat Transfer</td>
<td>M Sc- Chemistry Semester – II</td>
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<td>Material and Energy Balance</td>
<td>M Sc- Chemistry Semester – I</td>
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<tr>
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<td></td>
<td>Environment Engineering</td>
<td>M.Tech Green Tech Semester –II</td>
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<tr>
<td>Dr. Vishnu Ajgaonkar</td>
<td>Retired Department of Chemistry, University of Mumbai</td>
<td>Quantum Chemistry</td>
<td>M Sc- Chemistry Semester – II</td>
</tr>
<tr>
<td>Dr. Hemant Khanolkar</td>
<td>Assistant Professor, Department of Applied Chemistry Fr.Conceicao Rodrigues College of Engineering, Bandstand, Bandra(West) Mumbai-400 050</td>
<td>Physical Pharmacy</td>
<td>F Y B. Pharm Semester –II</td>
</tr>
<tr>
<td>Prof. Gail Carneiro</td>
<td>Department of Chemistry, Sophia College</td>
<td>Aromatic and Heterocyclic Chemistry</td>
<td>B. Tech Semester III</td>
</tr>
<tr>
<td>Prof. M.A. Shenoy</td>
<td>Retired from Institute of Chemical Technology, Mumbai</td>
<td>Polymer Chemistry (Elective)</td>
<td>M Sc- Chemistry Semester - IV</td>
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<tr>
<td>Dr. Girija Sahasrabudhe</td>
<td>Ph.D. Materials Science and Chemistry</td>
<td>Nano Chemistry</td>
<td>M Sc- Chemistry Semester – III</td>
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**Department of Chemical Technology I Institute of Chemical Technology I 501**
<table>
<thead>
<tr>
<th>Speaker</th>
<th>Affiliation</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Dr. Anirudh Shenvi</td>
<td>Technical Consultant and Visiting Faculty at Institute of Chemical Technology, Mumbai</td>
<td>Project Economy</td>
<td>M Sc- Chemistry Semester – IV</td>
</tr>
<tr>
<td>Dr. Mohmad Vasim Kasim Hanifa Sheikh</td>
<td>Department of Chemistry, Ram Narayan Ruia Autonomus College, Mumbai-400019</td>
<td>Inorganic &amp; Organometallic Chemistry</td>
<td>S.Y B.Pharm Semester –II</td>
</tr>
<tr>
<td>Ms. Aishwarya Mantravadi</td>
<td>M.Sc. (Specialisation in Physical Chemistry) from Ram Narayan Ruia Autonomus College, Mumbai-400019</td>
<td>Physical Chemistry Laboratory-II Practical</td>
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**ENDOWMENT LECTURES**

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<th>Speaker</th>
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<th>Topic</th>
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<tbody>
<tr>
<td>Prof. S. Natrajan</td>
<td>IISc Bangalore</td>
<td>8th December 2016</td>
<td>Designing Chromophores in the Solid State: The Role of Transition Elements</td>
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<tr>
<td>Prof. P. Selvam</td>
<td>IIT Madras</td>
<td>8th December 2016</td>
<td>Nanostructured Materials and Their Applications in Catalysis</td>
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<tr>
<td>Prof. M. Swaminathan</td>
<td>Annamalai University, Chidambaram, TN</td>
<td>2nd July 2016</td>
<td>Photocatalysis in Effluent Treatment</td>
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**CMP Endowment**

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<tr>
<td>Dr. Ram Mohan</td>
<td>Illinois Wesleyan University USA</td>
<td>27th June, 2017</td>
<td>Better Living through Green Chemistry: An Introduction to Toxic Molecules, Case Studies, Useful Chemicals from Renewable Resources</td>
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<tr>
<td>Prof. A.K. Tyagi</td>
<td>BARC, Mumbai</td>
<td>25th March 2017</td>
<td>Art of Synthesis of Materials</td>
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**TEQIP / Guest Lecture**

<table>
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<th>Affiliation</th>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Dr. Surendra Kulkarni</td>
<td>Christ University, Bangalore</td>
<td>17th February 2016</td>
<td>Alternate Energy Sources</td>
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</table>
The Department of Chemistry conducted a workshop to train the security personnel of ICT under the auspices of TEQIP – II. The workshop was conducted on five weekends during July to August 2016. The concluding session of the workshop was held on 3rd September 2016. The workshop was intended for all the security staff members in ICT. The main focus of the workshop was training the ICT security personnel in various areas such as squad drill, preliminary self-defence skills, basic fire-fighting skills and leadership skills. In order to achieve this goal, the workshop consisted of lectures, interactive sessions and hands-on training sessions.

A total of 25 members from the security staff had registered for the workshop. Lt. Rakesh Barai (Associated NCC Officer, Guru Nanak Khalsa College of Arts, Science and Commerce) and his team of NCC cadets conducted a number of squad drill and self-defence sessions. Lt. Barai also conducted lectures as well as interactive sessions on personality development. Special mention must be made of Shri Vinod Mohite, who was in-charge of the self-defense training and Shri Sukhraj Singh Riad, who supervised the squad drill training. The fire-fighting sessions were conducted by Shri Sachin Khedekar (Chetana Foundation). Breakfast and lunch were provided to the participants.

At the end of the training, the participants were assessed through a written test. The participants were awarded with a certificate of participation based on their attendance record and satisfactory performance in the written examination at the concluding session. The concluding session was chaired by Hon’ Vice-Chancellor Prof. G. D. Yadav, who commended the efforts of the security staff to enhance their skills while maintaining the security standards of the Institute and the resource persons for their contribution. Other dignitaries present at the concluding session included Prof. S. S. Lele (Registrar), Prof. B. M. Bhanage (Dean, ICD), Prof. P. R. Vavia (Dean, AP) and Prof. R. V. Jayaram (Head, Department of Chemistry). Participants’ feedback was taken during the concluding session, both verbatim and in the written form.

The feedback from the participants was very positive and encouraging. The participants also came up with proactive suggestions for improving the laboratory safety issues in the institute.
WORKSHOP ON LABORATORY SAFETY

Ensuring laboratory safety is an important aspect of research at the Institute of Chemical Technology. The Department of Chemistry conducted a two-day Workshop on Laboratory Safety for the PhD students with the aim of creating a general awareness about common laboratory safety issues. The workshop focused on sensitizing the students towards potential hazards in a chemical / biochemical laboratory and providing them with the technical know-how to prevent and manage potentially dangerous situations. The workshop included lectures and interactive sessions by various experts from the academia and industry in addition to first aid and fire-fighting demonstrations.

The workshop was organized under the auspices of Technical Education Quality Improvement Program – Phase II (TEQIP – II). The workshop was organized on the 1st and 2nd of September 2016, in the KV Auditorium and was coordinated by Prof. J. M. Nagarkar (Convenor) and Dr. Sudam Dawade (Co-Convenor). It was made open to the Ph.D students of the all the Departments of Institute of Chemical Technology. Admission to the workshop was through prior registration. The registration forms were made available to all the students electronically. As many as 124 students registered within the deadline and the registered participants were notified of the Workshop schedule in advance through email. The participants were also provided with a manual on Laboratory Safety as a part of the registration kit, which was sponsored by TEQIP-II.

The inaugural session of the workshop was chaired by Prof. R. V. Jayaram (Head, Department of Chemistry, ICT) and the workshop was inaugurated by Prof. S. D. Samant (Department of Chemistry, ICT). Prof. Samant gave an overview of the safety and related issues during his inaugural address and emphasized the importance of the various topics scheduled for discussion in the next two days. The workshop began with a lecture on “Compatibility and storage of Chemicals” by Prof. Samant. Dr. Prerna Goswami (General Engineering Department, ICT) discussed the importance of “Electrical Safety”. The workshop began with a lecture on “Personal Protective Equipments” by Prof. R. V. Jayaram (Department of Chemistry, ICT). The safety workshop lecture series again started after lunch break with lecture on “Toxicity” by Dr. Sasikumar Menon. This was followed by lecture of Shri. Vijay Bhujle (Intertek Industries and Visiting Faculty member, ICT) then delivered a talk on “Development of Safe Manufacturing Processes”. This was followed by a video demonstration “Safe Practices in R & D laboratory to achieve them” and the students actively participated in the interaction session after the demonstration. Then demonstration session was organized on “First-aid in Lab Accidents” by Dr. Rupesh Gaikwad (M. D. College, Mumbai).

The second day of the workshop commenced with a valuable lecture on “Laboratory Safety” by our Hon. Vice-Chancellor Prof. G. D. Yadav. This was followed by a lecture on “Laboratory Waste Management” by Dr. J. M. Nagarkar (Department of Chemistry, ICT). The next lecture on “Handling High Pressures” by Prof. B. M. Bhanage (Department of Chemistry, ICT) was focused on the management of gas cylinders and laboratory systems using high pressure conditions. After this Dr. Sandip Kale (DBT-ICT Center) delivered a lecture on “Biosafety”. The final lecture of workshop was on the “fire hazards and fire-fighting aspects” was given by Shri Santosh Hule (Manager, HES, NOCIL). Which was followed by giving the hands-on training in the important skills of fire-fighting through a demonstration on the Futsal ground of ICT. The fire-fighting demonstrations were conducted by Shri Santosh Hule.

The participants’ feedback was taken during the concluding session, both verbatim and in the written form. The feedback from the participants was very positive and encouraging. The participants also came up with proactive suggestions for improving the laboratory safety.
issues in the institute. Thus, the workshop was successful in not only creating a general awareness about safety issues, but also brought forth many suggestions from the student community.

A written examination was conducted based on the contents discussed during the workshop. The participants were awarded with a certificate of participation upon successful completion of the workshop (based on their attendance and performance in the written examination). The workshop concluded at 5:45 p.m. on 2nd September, 2016.

“TEACHING AND LEARNING” WORKSHOP / CONFERENCE

Dates: 23rd and 24th September 2016

The Department of Chemistry under the aegis of Technical Education Quality Improvement Programme (TEQIP) has organized a Teaching and Learning Workshop on 23rd and 24th September 2016 at the Institute of Chemical Technology, Matunga, Mumbai. The aim of the workshop was to provide a common platform to address some academic issues/challenges/problems/ doubts, etc. in regard to the various topics related to pedagogy. In this context, lectures related to the topics such as – philosophy and history of science, learning kinaesthetic, virtual labs, information and communication technologies in teaching, learning styles, value innovation, gender bias in science, generating quality assessment instruments and evolution of the scientific method – were organized.

The workshop was coordinated by Prof. S. D. Samant and Dr. Vijay Kumar A., Department of Chemistry, ICT. Prof. Subramaniam, Director, HBCSE, was the Chief Guest.

The first technical session started from 10.00 am. The inaugural lecture was delivered by Prof. K. Subramaniam on What is Science – Philosophical and Historical Perspectives. On the same day Prof. Sanjay Chandrasekharan took session on The impossible optimization problem, followed by Mr. Vivek Phadke on the topic Whyteachers should know, self and students' personality for better delivery. Mr. Phadke had provided three questionnaires and based on the feedbacks, analyzed the learning and teaching styles of the participants. He explained the analysis in detail. The last talks were deliveries by Prof. M. Sasikumar and Prof. Santosh Narohna on the topics Using ICT tools to make your teaching more effective and Virtual Labs, respectively.

On the Saturday, 24th September, the first talk was on Value Innovation Lab - A mandate for both teachers and learners, which was delivered by Prof. Uma Shankar. The next talk was by Prof. Vijay Singh who talked on Science Education research and its imperative for teachers to appreciate it. He gave some problems for brainstorming as well. The third session was taken by Dr. Sugra Chunawala on Gender, Science and Technology: Educational implications. In the 4th technical session, Mrs. Rekha Ramesh spoke about Generating Quality Assessment Instrument in curriculum practices followed by two talks by Dr. Amit Dhakulkar and Prof H.C. Pradhan on How to select software for teaching and learning and The evolution of the scientific method through history of science (up to the scientific revolution) respectively.

 Altogether 40 participants had participated in the workshop (attendance forms along with signatures attached for perusal). Some teachers from affiliated colleges in Mumbai also participated. The participants were given copies of some important articles for follow up reading. The participants had informal discussions with the resource persons. Overall the talks and discussions were very informative, interactive and it provided an opportunity to teachers to upgrade themselves with the latest happenings in pedagogy.
SCIENCE OF SYNTHESIS

A one day seminar series on “Science of Synthesis” organized by Dept. of Chemistry and Theime Publishers 9th Dec. 2016. (Speaker: Guido Hermann): This event was organized for faculty members and research students of ICT. The objective of this event was to educate researchers about new methods of literature search.

MICROWAVE ASSISTED ORGANIC SYNTHESIS

A one day seminar series on “Microwave Assisted Organic Synthesis” organized by Dept. of Chemistry and Anton Paar on 16th Dec. 2016 (Speaker: Prof. Oliver Kappe): This event was organized for the research students of ICT, also researchers from various other universities were also participated in this seminar series. Prof. Oliver Kappe discussed the applications of microwaves as well as green chemistry approaches in organic synthesis.

LABORATORY SAFETY – PITFALLS AND REMEDIES

Inculcating awareness about the common hazards faced by chemists in the research laboratory and developing a working environment to prevent them, has been the priority of the Institute. Due to overwhelming response of the first workshop on Laboratory Safety, the Department of Chemistry conducted a two-day workshop titled “Laboratory Safety – Pitfalls and Remedies” on the 27th and 28th February 2017 under the auspices of TEQIP – II. The workshop was intended for the research students of all the Departments in ICT. The main focus of the workshop was to sensitize the students about the potential sources of environment / health hazards and the methods for preventing or minimizing the impact of such hazards. In order to achieve this goal, the workshop consisted of lectures, interactive sessions and hands-on firefighting and first-aid demonstrations. About 120 students who registered for the workshop.

The workshop was inaugurated by Prof. A. B. Pandit (Dean, HRD), who emphasized the need for a safe and sustainable working environment in the research laboratory. Prof. Samant gave a brief overview of the issues related to safety in a laboratory. He then introduced the participants to various aspects of safe chemical storage. This was followed by a lecture on “Development of Safe Manufacturing Processes” by Shri Vijay Bhujle (GVS Cibatech Pvt. Ltd.) wherein he discussed the various aspects of achieving safe environment in a R&D laboratory.

The next session, began with a discussion on “Toxicity” by Dr. Sadhana Sathye (Department of Pharmaceutical Sciences and Technology) which outlined the different parameters used for measuring toxicity and the long term impact. This was followed by a lecture on “Handling High Pressure Reactions” by Dr. Yogesh Wagh (USP Pvt. Ltd.) who shared his experiences and knowledge related to the hazards posed by high pressure setups in the laboratory. Shri Santosh Hule (NOCIL Ltd.) delivered a talk on “Fire Hazards” which discussed the firefighting basics in details. Shri Hule also utilized numerous case studies to drive the point home. The final session on the first day was the firefighting demonstration by Shri Hule and his associates. The hands-on training session was much appreciated by the participants of the workshop.

On the second day, the morning session began with a lecture on “Electrical Safety” by Dr. Prerna Goswami (Department of Electrical Engineering). Prof. R. V. Jayaram shared her expertise on personal protective equipment. Prof. J. M. Nagarkar spoke on various aspects of “Waste Management” in the laboratory. After the lunch
break, the participants were trained in Biosafety aspects by Prof. S. K. Kale (DBT – ICT Centre for Energy Biosciences). Finally the participants were taught the basics of first-aid through demonstrations by Dr. Rupesh Gaikwad (Maharshi Dayanand College of Arts, Science and Commerce). These included the basic practices of bandaging, transportation of sick people and other common accidental situations in the laboratory.

The workshop concluded with a written test and the feedback form. Participants’ feedback was taken during the concluding session, both verbatim and in the written form. The valedictory session was chaired by Prof. Padma Devarajan (TEQIP Coordinator), who commended the efforts of the Department of Chemistry and requested the participants to incorporate the knowledge gained through the workshop in the routine lab practices. The feedback from the participants was very positive and encouraging.

**RASAYANAM 2017**

Rasayanam, the official Intercollegiate Chemistry festival of the Department of Chemistry, ICT was first conceived in 2013 with the primary aim of enthusing young mind towards chemistry and imbibing the centrality of chemistry in life. This fun-filled intercollegiate chemistry related event was held on 12th and 13th January 2017. Students from several local colleges participated in this programme. Events such as “The MegaMinds”-a chemistry quiz for post graduate students, “What is the Fun” - A chemistry and skill based quiz for under graduate students, “Chem Enigma” - an event based on crime scene investigation, “Chem Draw” - a poster presentation competition, “Chem Shodh” - a treasure hunt with chemistry based clues, “Rasayan mela” - fun with chemistry experiments and games, and “Chem Housie” - A normal housie game with element symbol instead of numbers, all were part of this programme and received over whelming response and appreciation.

The Inaugural ceremony started with Dr. Surendra Kulkarni, the Research Director & Site Head for SABIC Technology Centre, Bengaluru who was the Chief Guest for the occasion. The ceremony was blessed with the presence of the honorary Vice-Chancellor of the Institute, Prof. G.D. Yadav. Dr. Vijay A. Kumar, the convenor, welcomed the guests with a floral bouquet and addressed the audience with the introduction of Rasayanam and gave a small but inspiring talk about chemistry and strength of today’s generation. The ceremony ended with the Opening of Rasayanam by unveiling poster of Rasayanam by the dignitaries on the dais.

Events conducted in the festival were:
- **The MegaMinds** - A chemistry quiz for Post-graduate students with 25 teams participating for the elimination round. 5 teams were selected for the final round. At the end of the quiz, top 3 winners were selected with students of Centre for Basic Science bagging 1st prize.
- **What the Fun!** - A chemistry and skill based quiz for the Undergraduate students with 100 teams participating in the elimination round and 5 teams selected for the final round. The first prize winner was from St. Xavier’s College.
- **ChemEnigma** – An event based on Crime Scene Investigation and forensic science. The event saw the participation of 30 teams with 7 teams going for the final round. The winners of the first prize were from Ruia College.
- **ChemDraw** - The event was a poster presentation competition wherein 20 participants presented hand-made posters based on the topics given to them. Judges for the event were Dr. Shraeddha Tiwari and Dr. Dipanwita Das. The first prize winner was from Ruia College.
- **ChemShodh** – Treasure hunt with chemistry-based clues was conducted on both the days of the festival with 25 teams of 4 participants.
participating on each day. The treasure hunt took place intra- as well as inter-ICT. Separate winners were selected for two days.

Day 1- Ruia College
Day 2- Khalsa College

- Rasayan-Mela – The event was the centre of attraction with chemistry experiments being conducted for the live audience on both the days. The experiments conducted were simple chemistry-based, keeping into consideration lab safety and MSDS of every chemical used. Beside experiments, building the molecule game was the attraction for all the UG and PG participants.
- ChemHousie – A normal housie game with element symbol instead of numbers. It was organized by PhD students from the department.
- The closing ceremony of Rasayanam was held on 13th January, 2017 at 05:30 p.m. in the K.V. Auditorium with prize distribution in which the winners were awarded cash prizes, trophies and certificates. The participants were awarded with the participation certificates. The ceremony ended with the vote of thanks by the Jevy V. Correia. Overall the participation for Rasayanam-2017 was about 500. The festival has seen an exponential growth in participation with 100% increase in participation in Rasayanam 2017 as compared to the year of its inception.
## SPONSORED PROJECTS

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<tr>
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<th>Sponsor by Government / Private</th>
<th>Name of Sponsor</th>
<th>Title</th>
<th>Duration</th>
<th>Amount sanctioned (inRs.)</th>
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</thead>
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<td><strong>Professor R. V. Jayaram</strong></td>
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<tr>
<td>Personal</td>
<td>Government</td>
<td>IGCAR, Kalpakkam, India</td>
<td>Synthesis of N,N-dialkyl-2-alkoxyacetamides extractants and N,N-dialkyl-2-alkoxyacetamides grafted resins for the separation of trivalent actinides from nitric acid medium and modelling of extractants</td>
<td>3 years</td>
<td>27, 16, 800</td>
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<tr>
<td>Personal</td>
<td>Government</td>
<td>Department of Science and Technology post-doctoral research programme</td>
<td>Water bound polymers for adhesive applications</td>
<td>3 years</td>
<td>27, 83, 000</td>
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<td><strong>Professor B. M. Bhanage</strong></td>
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<tr>
<td>Personal</td>
<td>Government</td>
<td>TEQIP-II INN Project</td>
<td>Development of Green and Sustainable Methodology for the Synthesis of Quinazolines and 1, 3, 5-Triazines.</td>
<td>3 years</td>
<td>5,20,000</td>
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<tr>
<td>Personal</td>
<td>Government</td>
<td>CoE-Process Intensification, TEQIP-II</td>
<td>Microwave, Solar Energy, Ultrasound assisted synthesis of metal oxide nano-materials.</td>
<td>3 years</td>
<td>10,00,000</td>
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<td><strong>Dr. Anant Kapdi</strong></td>
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<tr>
<td>Personal</td>
<td>Government</td>
<td>Department of Science and Technology</td>
<td>Application of Palladacyclic Complexes in Synthesis</td>
<td>5 years</td>
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<td>Personal</td>
<td>Government</td>
<td>University Grants Commission</td>
<td>UGC-FRP One time research grant</td>
<td>2 years</td>
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<td>Project Title</td>
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<td>Personal</td>
<td>Government</td>
<td>DST</td>
<td>‘Metal-mediated One-Pot Sequential (Telescoping) Reactions for the Synthesis of Multifunctional Nucleosides/ Nucleotides with Promising Photo- and Biophysical Properties.’</td>
<td>3 years</td>
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<td>CSIR</td>
<td>‘Development of Novel Approaches to Multifunctional C-Nucleosides using Palladium-Catalyzed Coupling Processes in Aqueous Media.’</td>
<td>3 years</td>
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<tr>
<td>Personal</td>
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<td>RasayanInc</td>
<td>Green Approach towards the synthesis of substituted nucleosides</td>
<td>3 years</td>
<td>25,00,000</td>
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<td>Personal</td>
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<td>Reliance</td>
<td>Development of new external donors (especially long chain esters and amides of fatty acid) for Homo-grade propene polymerization.</td>
<td>1 year</td>
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<td>Encore Pvt. Ltd.</td>
<td>Development of efficient processes for commercially useful drugs.</td>
<td>2 years</td>
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<td>Collaborative</td>
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<td>Department of Biotechnology</td>
<td>‘Synthesis and Cellular Evaluation of Novel Palladacyclic Complexes for Breast Cancer’</td>
<td>3 years</td>
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<td>Multi-functional Nucleosides and Nucleotides via Palladium-Mediated Reactions Using Novel Palladacyclic Complexes with Promising Anticancer Activities</td>
<td>3 years</td>
<td>55,000 euros (Rs. 38,00,000)</td>
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<td><strong>Dr. Kaustubh A. Joshi</strong></td>
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<td>DST-SERB</td>
<td>Efficient QM/MM approach for Protein/ Ligand Binding Free Energies: finding inhibitors for novel cathepsin K, an Osteoporosis target</td>
<td>3 years</td>
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<td>Personal</td>
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<td>DST - SERB</td>
<td>Efficient QM/MM approach for Protein/ Ligand Binding Free Energies</td>
<td>5 years</td>
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<td>DST-SERB</td>
<td>Investigating reactivity and selectivity of organic reactions in liposomes as microreactor assemblies</td>
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<td>DST-INSPIRE</td>
<td>Investigating reactivity and selectivity of organic reactions in liposomes as model protocells</td>
<td>5 years</td>
<td>3500,000</td>
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<td><strong>Dr. Dipanwita Das</strong></td>
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<td>DST-INSPIRE</td>
<td>Transition metal mediated catalytic $2e^-/2H^+$ and $4e^-/4H^+$ reduction of $O_2$: synthesis, reactivity correlation and mechanistic insights by trapping intermediates</td>
<td>November 2013 to November 2018</td>
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<td>DST-SERB</td>
<td>Development of Promising Photochromic Metal Organic Frameworks with Functionalized Photo-switchable Groups</td>
<td>November 2015 to November 2018</td>
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<td>Dr. Sanghamitra Chatterjee</td>
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<td>Personal</td>
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<td>Department of Science and Technology (DST)</td>
<td>Nanomaterial Based Electrochemical Sensors for Biomedical Applications</td>
<td>August 2014 to August 2019</td>
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<td>Dr. Sudam G. Dawande</td>
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<td>DST-SERB</td>
<td>Design, Synthesis of O-Thioester Substituted N-sulphonyl-1,2,3-triazoles and Their applications in The Intramolecular Cyclization to Synthesize Benzo Fused Thioheterocycles.</td>
<td>04/2016-03/2019</td>
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<td>Ruthenium(II) catalysis in the C-6 Functionalyzation of Indoles: C-C and C-O Bond Formation</td>
<td>04/2017-3/2021</td>
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**CONSULTANCY**

**Prof. B. M. Bhanage**
Industrial Consultants to several reputed chemical industries

- Technical Consultant: ChemCleanzio, India Pvt. Ltd
- Board of Advisors: Nanocoat Chemtech Pvt. Ltd

**Prof. S.D. Samant**

- NOCIL Ltd, Pawane, Navi Mumbai
## RESEARCH PUBLICATIONS, PATENTS AND BOOK CHAPTERS

### A] Research Publications

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Title of the paper</th>
<th>Authors</th>
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<tr>
<td></td>
<td><strong>Prof. R. V. Jayaram</strong></td>
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<td>4</td>
<td>Heterogeneously Catalyzed Domino Synthesis of 3-Indolylquinones Involving Direct Oxidative C–C Coupling of Hydroquinones and Indoles</td>
<td>S. B. Kamble, P. P. Vyas, R. V. Jayaram, C. V. Rode</td>
<td>ACS Omega 2017, 2, 2238–2247</td>
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<td></td>
<td><strong>Prof. B. M. Bhanage</strong></td>
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<td>3</td>
<td>Oxime Palladacycle Catalyzed Carbonylative Sonogashira Cross-Coupling with High Turnovers in PEG as a Benign and Recyclable Solvent System</td>
<td>P. Gautam, B. M. Bhanage</td>
<td>ChemistrySelect, 2016, 1, 5463-5470</td>
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<td>6</td>
<td>Greener, Recyclable and Reusable RuCl₃/PEG-400/H₂O System for the Selective Hydrogenation of Biomass Derived Levulinic acid to γ-valerolactone</td>
<td>N.M. Patil, B. M. Bhanage</td>
<td>ChemCatChem, 2016, 8, 3458–3462</td>
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<td>7</td>
<td>Rh/Cu₂O nanoparticles: Synthesis, characterization and catalytic application as a heterogeneous catalyst in hydroformylation reaction</td>
<td>S.A. Jagtap, M.A. Bhosale, T. Sasaki, B.M. Bhanage</td>
<td>Polyhedron, 2016, 120, 162-168</td>
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<tr>
<td>9</td>
<td>KCC-1 supported palladium nanoparticles as an efficient and sustainable nanocatalyst for carbonylative Suzuki–Miyaura cross-coupling</td>
<td>P. Gautam, M.Dhiman, V. Polshettiwar, B.M. Bhanage</td>
<td>Green Chem., 2016, 18, 5890-5899</td>
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<td>12</td>
<td>Ru(II)/PEG-400 as a Highly Efficient and Recyclable Catalytic Media for Annulation and Olefination Reactions via C-H Bond Activation</td>
<td>S.L. Yedage, B. M. Bhanage</td>
<td>Green Chem., 2016, 18, 5635-5642</td>
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<td>13</td>
<td>Lipase immobilization on hydroxypropyl methyl cellulose support and its applications for chemo-selective synthesis of β-amino ester compounds</td>
<td>K.C. Badgujar, B. M. Bhanage</td>
<td>Process Biochem., 2016, 51, 1420-1433</td>
</tr>
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<td>14</td>
<td>Carbonylation of anthranilic acid with aryl and hetero aryl bromides as a concise way towards benzoxazinone derivatives</td>
<td>S.P. Chavan, B. M. Bhanage</td>
<td>Asian J. Org. Chem., 2016, 5, 1120-1123</td>
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<td>16</td>
<td>Size controlled synthesis of gold nanostructures using ketones and their catalytic activity towards reduction of p-nitrophenol</td>
<td>M.A. Bhosale, S. S. Gupta, B. M. Bhanage</td>
<td>Polyhedron, 2016, 120, 96-102</td>
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<td>23</td>
<td>A magnetic adsorbent for the mutual separation of Am(III) and Eu(III) from dilute nitric acid medium</td>
<td>A.S. Suneeish, R. Kumaresan, R. Jain, K. A. Venkatesan, M.P. Antony, B.M. Bhanage</td>
<td>Colloids and Interface Sci. Commun., 2016, 12, 13-16</td>
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<td>29</td>
<td>One–step sonochemical irradiation dependent shape controlled crystal growth study of gold nano/microplates with high catalytic activity in degradation of dyes</td>
<td>M.A. Bhosale, D.R. Chenna, B. M. Bhanage</td>
<td>ChemistrySelect, 2016, 1, 504–511 (ChemPubSoc Europe-Wiley Journal)</td>
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<td>33</td>
<td>Ultrasound Assisted Synthesis of Gold Nanoparticles as an Efficient Catalyst for Reduction of Various Nitro Compounds</td>
<td>M.A. Bhosale, B. M. Bhanage</td>
<td>ChemistrySelect, 2017, 2, 1225-1231</td>
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<td>39</td>
<td>Bio-renewable Sources derived Bi-functional Ionic Liquids as Sustainable Catalysts for Carbon Dioxide Fixation</td>
<td>V.B. Saptal, B.M. Bhanage</td>
<td>ChemSusChem, 2017, 10, 1145-1151</td>
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**Prof. S. D. Samant**

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<tr>
<td>1</td>
<td>Synthesis of dihydroquinoline based fluorescent cyanines for selective, naked eye, and turn off detection of Fe3+ ions</td>
<td>K. Vijay, C. Nandi, S. D. Samant</td>
<td>RSC Advances, 2016, 6, 49724-49729</td>
<td>2016</td>
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**Dr. J. M. Nagarkar**

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<td>5</td>
<td>Tandem and chemoselective synthesis of benzil and chemoselective synthesis of benzil derivatives from styrene and arene diazonium salts</td>
<td>V. G Jadhav, S. A. Sarode, J. M. Nagarkar</td>
<td>Tetrahedron Lett. 2017, 58, 1834-1838</td>
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**Dr. Anant Kapdi**

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<tr>
<td>1</td>
<td>Active Palladium Colloids via Palladacycle Degradation as Efficient Catalysts for Oxidative Homocoupling and Cross-Coupling of Aryl Boronic Acids</td>
<td>V. Sable, K. Maindan, P. Shejwalkar, K. Hara, A. R. Kapdi</td>
<td>ACS Omega 2017, 2, 204-217</td>
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**Dr. Vijay Kumar A.**

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<tr>
<td>1</td>
<td>Glycerol as a Recyclable Solvent for Copper-Mediated Ligand-Free C-S Cross-Coupling Reaction: Application to Synthesis of Gemmacin Precursor</td>
<td>A. V. Dubey, S. B. Gharat, A. Vijay Kumar</td>
<td>ChemistrySelect 2017, 2, 4852-4856</td>
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**Dr. Kaustubh A. Joshi**

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<td>1</td>
<td>TfOH Catalyzed [3+2] Cycloaddition of Cyclopropane1,1-Diesters with Nitriles: A Density Functional Study</td>
<td>S. S. Kurup, P. Singh, K. A. Joshi</td>
<td>ChemistrySelect 2016, 1, 6841 – 6846</td>
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**Dr. Shraeddha Tiwari**

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### Dr. Dipanwita Das

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<tr>
<td>1</td>
<td>Selective recognition of Cu (II) and Fe (III) using a pyrene based chemosensor</td>
<td>D. Phapale, A. Gaikwad, D. Das</td>
<td>Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 2017, 178, 160-165</td>
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### Dr. Dawande S. G.

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### Dr. Sanghamitra Chatterjee

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### B) Patents

**PROF. B. M. BHANAGE**

- An efficient synthetic methodology to synthesize 2- chloro alkyl ethanoate compounds catalyzed by lipase using supercritical carbon dioxide as a greener reaction media
- A robust bio-catalytic methodology to synthesize alkyl (2-E)-but -2- enoate compounds using lipase and supercritical carbon dioxide as agreener reaction system
- Ecofriendly method for synthesis of 2, 2 di- methyl propanoate compounds catalyzed by lipase in supercritical carbon dioxide as a greenerreaction system

- Method of making a bio-nanomaterial and its application.

### C) Book Chapters

**PROF. BHALCHANDRA M. BHANAGE**

- Palladium-Catalyzed Carbonylative and Carboxylative CH Functionalization Reactions:
Importance and Role of Regioselectivity P. Gautam, B.M. Bhanage in “Strategies for Palladium-Catalyzed Non-Directed and Directed C-H Bond Functionalization”

- Synthesis and catalytic applications of magnetic nanoparticles A.B. Patil, B. M. Bhanage
  Accepted for publication in “Encyclopedia of Nanoscience and Nanotechnology (25-Volume set)”, American Scientific Publishers, 2016

- Selection of Reaction Media S.T. Gadge, B.M. Bhanage

DR. ANANT KAPDI
INVITED TALKS

PROFESSOR S. D. SAMANT

- Lectures on Organic Reaction Mechanism, Vaze College, Mumbai, 17th October 2015
- Lecture on Clay catalyzed reactions, in UGC-sponsored Refresher course for chemistry teachers at Shivaji University, Kolhapur, 21st November 2015
- Lecture on Research Methodology in refresher course for college teachers at Jhunjhunwala college, Mumbai 14th December 2015
- Lecture on clay catalyzed reactions, Dept of Applied Chemistry, at M S University Vadodara, 18th December 2015

DR. ANANT R. KAPDI

- Invited oral presentation at Department of Biochemistry, University of Greifswald, Germany on 14th August 2015.
- Invited presentation to Reliance Industries Limited Rabale, Mumbai on 15th December 2015.
- International conference on Impact of Chemical Research on Environment held from 17th and 18th February 2016 in New College of Arts and Science, Parner. (Invited Talk: Development of Highly Active Pd-catalysts for efficient nucleoside modification)

PROF. R. V. JAYARAM

- Lecture series on Catalysis, surface Chemistry, IIRBS, Thrivananthapuram, Feb 2016
- Lectures on Catalysis Science and Technology, NIUS, HBCSE, Dec 2015
- Lectures on Chemical Kinetics, OCSC, HBCSE, May, 2015

DR. P. M. MORE


DR. SANGHAMITA CHATTERJEE


PROF. JAYASHREE M. NAGARKAR

- JUDGE at 13th state level Dr. T. R. Ingle lecture competition 2016 Organized by Department Of Chemistry S. P. College Pune on 11th March 2016

DR. DIPANWITA DAS

- Potential Anion Sensing Properties by a Redox and Substitution Series of [Ru(bpy)$_{3-n}$Hdpa$_n$]$^{2+}$, n=1-3; Hdp = 2,2′-dipyridylamine: Selective Recognition and Stoichiometric Binding with Cyanide and Fluoride Ions"
DOCTORAL DEGREES AWARDED

DEEPAK K. KURHE

Guide: Prof. R. V. Jayaram
Thesis title: Synthesis, characterization and application of functional polymer

Brief abstract:
Functional Polymers have a wide range of applications in industry. Polyacrylamides belong to the class of non-ionic, water soluble synthetic functional polymers. Their inert nature is advantageous in most of the applications. The objective of the present research work is to synthesize polyacrylamide based functional polymers, characterize them and study their applications in catalysis, sensing organic pollutants and waste water treatment.

The work done is summarized as follows
- Cationic-polymer/bentonite complex-synthesis, characterization and application as an adsorbent
- Poly (N-2-aminoethyacrylamide) grafted polystyrene-Cu (II) complex-catalyst for the conversion of aldehydes into primary amides
- Oxidant-free, without the use of extra templates or capping agents which makes the protocol greener for the synthesis of nanoparticles. In this regard, the present work is a fruitful attempt to develop size and shape selective nanoparticles using simple and greener reaction procedure with their detailed characterizations using various analytical techniques. Catalysis has extensive applications in synthesis of variety of industrially important compounds including fuels and fine chemicals. The homogeneous and heterogeneous catalysis have their own advantages with certain drawbacks which restrict their applications in various fields. Nanocatalysis is the branch of catalysis in which nanoparticles acts as a catalyst for organic transformations. Nanoparticles are stable, insoluble in reaction media and having high surface area which increases the contact between substrates/reactants. It has been proven that nanocatalysts acts as a bridge between homogeneous and heterogeneous catalysis. In this regards, the research focused on synthesis of various morphology selective metal and metal oxide nanoparticles (Pd, Cu₂O, Cu/Cu₂O, NiO, Fe₂O₃) using microwave, sonochemical and thermal routes with their detailed characterizations. Furthermore also studied the applications of as synthesized nanocatalysts for different organic coupling reactions including Buchwald-Hartwig amination reaction, and C-C,
C-N bond formation reactions.

**DR. DEEPAK B. NALE**

Guide: **Prof. B. M. Bhanage**

Thesis title: **Direct and Indirect Chemical Fixation of Carbon-dioxide (CO$_2$) for the Synthesis of Valuable Chemicals**

**Brief abstract:**

Catalytic transformation of carbon dioxide (CO$_2$) is undoubtedly most useful and widely applicable method for the carboxylative cyclization of chemicals and has found immense attention in the synthetic organic chemistry, research laboratories and industrial processes. CO$_2$ has wide abundance in nature, inexpensive, non-toxicity, non-flammable and bio renewable anthropogenic natural carbon source and it is also easy for transportation and storage. Utilizing of renewable resources as a ubiquitous Cl source as well as an important "greenhouse gas" has been also attracted much more attention in the view of "green chemistry" concepts and a sustainable society. The most significant utility lies in replacing phosgene, isocyanate or carbon monoxide-based routes, by catalytic incorporation of CO$_2$ into organic compounds for their respective functionalization. In addition, replacing the conventional transition metal complex catalytic system having several drawbacks such as their sensitivity towards air, high cost and requirement of special techniques for handling is a substantial improvement in organic synthesis this regards, the present work is a fruitful attempt to exemplify our contribution to the area of chemical fixation of CO$_2$, in particular, one of the attractive route for chemical fixation of CO$_2$ is to efficiently convert three-membered oxirane into five member cyclic carbonate. In the present study, we have prepared highly efficient, economical and recyclable catalysts for the development of green methodologies for the synthesis of pharmaceutically important chemicals using various homogeneous and heterogeneous catalysts such as AEPTMS line functionalized MCM-41, APTES modified mesoAl$_2$O$_3$@MCM-41, Cu(OAc)$_2$•H$_2$O, Zn(OAc)$_2$•2H$_2$O and anhyd. K$_2$CO$_3$ including PMHS (poly(methylhydrosiloxane)), DMAB (dimethylamine borane) as green reductant. These prepared heterogeneous catalysts were well characterized by different analytical techniques such as FT-IR, SEM, TEM, Solid state NMR, TPD, BET surface area and TGA/DSC in terms of their bulk and surface properties. The activity/selectivity of the catalysts was correlated with their physico-chemical properties, wherever possible. The main objective of the thesis was to study chemical fixation of CO$_2$ into valuable chemicals.

**DR. KISHOR V. WAGH**

Guide: **Prof. B. M. Bhanage**

Thesis title: **Studies in Ionic Liquid and Solid Acid Catalysed Organic Reactions**

**Brief abstract:**

Environmental concern associated with chemical synthesis has posed strict and vital demands for greener processes, and the development of cost-effective and environmentally benign catalytic systems has become one of the main themes of present-day synthetic community. Ionic liquids (ILs) have gained great attention in last 15 years as evidenced by their increasing popularity in catalysis. Features that make ionic liquids attractive media have unique interactions with the active species and improved activities and selectivity of the reaction. In this context, we have described the novel and sustainable catalytic routes for the synthesis of commercially important fine chemicals. In addition to this the applications of heterogeneous solid acid catalysts as a green alternative for important organic reactions is also studied.
**DR. NILESH M. PATIL**

Guide: **Prof. B. M. Bhanage**  
Thesis title: **Transfer Hydrogenation and Hydrogenation Reactions for the Selective Reduction of Value Added Chemicals**  
Brief abstract:  
Chemo-selective hydrogenation is one of the most important transformations in organic synthesis, and has found numerous applications in fine chemicals, pharmaceuticals, research laboratories and industrial processes. Direct hydrogenation (H₂ gas) and transfer hydrogenation (TH) are the two methods for the reduction of various organic moieties. Heterogeneous catalysis has the selective in action along with recyclability for the hydrogenation reactions. Moreover, homogeneous recyclable catalysts have been further developed which extended the scope for highly selective catalytic hydrogenation. Considering this fact, this thesis work reports a several green methodologies for the selective reduction of value added chemicals.

**MR. VIJAY K.**

Guide: **Prof. S.D. Samant**  
Thesis title: **Synthetic modifications and applications of industrial aza heterocyclic intermediates**  
Brief abstract:  
Dihydroquinolines and benzthiazoles are industrially important intermediates. 2,2,4-Trimethyldihydroquinoline is used as an antioxidant in rubber industries. Objective of the present work is to develop some novel compounds using the industrially important intermediates. Next is to find out some applications of the newly developed compounds. The interested molecules were procured from industrial sources.  
The work done is summarized as follows,  
1. Synthesis of dihydroquinoline and pyrazolone based merocyanines as ‘naked eye’ and ‘fluorogenic’ sensors for hydrazine hydrate in aqueous medium and hydrazine gas  
2. Synthesis of dihydroquinoline and imidazopyridine based cyanine as selective and sensitive sensor for Ferric ion  
3. Facile strategy for selective halogenation of 2,2,4-trimethyl-1,2-dihydroquinolines with hypohalites  
## CURRENT DOCTORAL PROJECTS

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<th>Sr. No.</th>
<th>Research Scholar</th>
<th>Research Topic</th>
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<td>Catalysis by bimetallic nanoparticles</td>
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<td>Effects of ionic liquids and other chelating agents on physicochemical properties of surfactants</td>
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<td>Dattatraya Hase</td>
<td>Synthesis of novel N-based extractants for nuclear fuel reprocessing</td>
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<td>Kavita Khiste</td>
<td>Enzyme catalysis in degradation of organic pollutants from industrial waste and extraction of value added compounds from micro algae and other sources</td>
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<td>13</td>
<td>Kunal Pawar</td>
<td>Micellar catalysis for selective organic transformations</td>
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### Prof. R. V. Jayaram

<table>
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<tr>
<th>Sr. No.</th>
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### Prof. B. M. Bhanage

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<td>1</td>
<td>Gajengi Aravind</td>
<td>Studies in Nanoparticle Synthesis</td>
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<td>2</td>
<td>Bhagade Sachin</td>
<td>Studies in hydroformylation reactions for the synthesis of fine chemicals</td>
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<td>3</td>
<td>Saptal Vitthal</td>
<td>Carbon dioxide fixation for the synthesis of valuable chemicals</td>
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<tr>
<td>4</td>
<td>Jagtap Samadhan</td>
<td>Studies in hydroformylation reactions for the synthesis of fine chemicals</td>
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<td>5</td>
<td>Satpathy Anil</td>
<td>Transition Metal catalysed polymerization &amp; depolymerization reactions</td>
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<td>6</td>
<td>Mathapti Ashwini</td>
<td>Studies and Kinetics in enzymatic reaction</td>
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<td>7</td>
<td>Vijyesh Vyas</td>
<td>Studies in asymmetric catalysis</td>
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<td>8</td>
<td>Ashish Mishra</td>
<td>Synthesis of Nano-material oxide and its application in Organic Transformation</td>
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<td>9</td>
<td>Kripa Subramaniam</td>
<td>Electrodeposition of metals using ionic liquids</td>
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<td>10</td>
<td>Chaurasia Shivkumar</td>
<td>Synthesis of hybrid nanoparticle and their application</td>
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<td>11</td>
<td>Raut Amol</td>
<td>Synthesis and Application of nanoparticle</td>
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<tr>
<td>12</td>
<td>Dewal Deshmukh</td>
<td>Dimerization and telomerization reaction</td>
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<td>13</td>
<td>Gaikwad Vinayak</td>
<td>Studies in carbonylation reaction</td>
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<td>No.</td>
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<td>Research Area</td>
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<td>14</td>
<td>Dhande Jawal Priyanka</td>
<td>Studies in enzymatic synthesis</td>
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<td>15</td>
<td>Phatake Vishal</td>
<td>Studies in CO2 fixation</td>
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<td>1</td>
<td>Niesh Korgavkar</td>
<td>Development of polymeric and gel entrapped base catalysts for base catalysed organic reactions.</td>
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<td>2</td>
<td>Prateek Jain</td>
<td>Preparation and application of modified metal oxide catalysts for organic synthesis</td>
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<td>1</td>
<td>Zade Ramesh N.</td>
<td>Application of mixed metal oxides as catalyst in organic transformations involving C-C, C-N, C-O &amp; C-S bond formation</td>
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<td>2</td>
<td>Sarode Sachin A.</td>
<td>Synthesis and applications of Nanomaterials as Catalyst in Organic Transformations</td>
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<td>Jadhav Vilas G.</td>
<td>Study of supported metals and their application in organic transformations</td>
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<td>4</td>
<td>Bhojane Jeevan M.</td>
<td>Studies of transition metals and metal complexes in the C-C, C-N and C-S bond formation in the organic synthesis</td>
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<td>5</td>
<td>Gund Sitaram H.</td>
<td>Studies in C-C and C-S bond formation reactions by using transition metals</td>
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<td>6</td>
<td>Balsane Kishor E.</td>
<td>Studies in C-C bond formation using various metals and metal nano particles</td>
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<td>7</td>
<td>Wagh Ravindra B.</td>
<td>Studies on oxidation of organic compounds with peroxides</td>
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<tr>
<td>1</td>
<td>Ajaykumar Ardhapure</td>
<td>Development of novel route for the synthesis of substituted Nucleosides by using transition metal-catalysed reactions</td>
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<tr>
<td>2</td>
<td>Dharmendra Prajapati</td>
<td>Synthesis and Application of novel metallacycles in organic synthesis.</td>
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<tr>
<td>3</td>
<td>Gopal Dhangar</td>
<td>Metal mediated coupling reactions under mild conditions.</td>
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<tr>
<td>4</td>
<td>Mahendra Patil</td>
<td>Supramolecular polyoxometalate structures synthesis and application for various catalytic organic transformation.</td>
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<td>5</td>
<td>Vaibhav Sable</td>
<td>Metal-mediated Synthesis and Application of(Hetero)aromatic Aldehydes</td>
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<tr>
<td>6</td>
<td>VidyaZende</td>
<td>Synthesis of novel ligands and applications in various organic reactions</td>
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<td>7</td>
<td>Vijay Gayakhe</td>
<td>Greener approaches towards metal-mediated synthesis of important heterocycles</td>
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<td>8</td>
<td>Shatrughn Bhilare</td>
<td>Development of efficient catalytic systems for Nucleoside modification via Sonogashira reaction</td>
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<td>9</td>
<td>AniketGholap</td>
<td>Development of efficient C-H bond functionalization protocols for Nucleoside modification</td>
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<tr>
<td>10</td>
<td>Tejpal Girase</td>
<td>Carbazole-based synthetically and biologically relevant molecules.</td>
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<tr>
<td>11</td>
<td>Yuvraj Bhujabal</td>
<td>Development of novel metal-mediated processes for nucleoside modification</td>
</tr>
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</table>

**Dr. Vijay Kumar A.**

| 1   | Abhishek Dubey      | Transition Metal Catalyzed Synthetic Organic Transformations              |
| 2   | Prashant Mandal     | Synthetic Approaches For the Synthesis of Chroman Heterocycles           |
| 3   | Rani Patil          | Development of Supramolecular based Catalysts For Organic Transformations |
| 4   | Shweta Pawar         | Biomimetic Catalysts For Organic Transformations                         |

**Dr. Kaustubh Joshi**

| 1   | Snehal Ingle        | Exploring NMDA receptor as target for neurodegenerative diseases: a Computational approach |
| 2   | Shilpa Nath         | Theoretical study in Silicon Chemistry                                   |

**Dr. Shraeddha Tiwari**

| 1   | Mangesh Potangale   | Vibrational spectroscopic study of ionic liquid systems and their structures and interactions |
| 2   | Arun Valvi          | Solvent effect on reactivity and selectivity of aromatic nucleophilic substitution |
| 3   | Jyoti Dutta         | Study of reactivity and selectivity of chemical processes in microreactors |
| 4   | Daulat Phapale      | Development of Photochromic Metal Complexes: Kinetics and Photophysical Study **Co-guide: Dr. Dipanwita Das** |

**Dr. Dipanwita Das**

| 1   | Sagar Patil         | DNA binding and molecular sensing studies of functionalized ruthenium polypyridyl complexes |
| 2   | Vrushali Raut       | Heterogeneous catalytic oxygen reduction by metal organic framework          |

**Dr. Sanghamitra Chatterjee**

| 1   | Tarlekar Pravin     | Development of Electrochemical Sensors for Investigation of Electroactive Compounds |
| 2   | Mane Suyash         | Electrochemical Determination of Drugs Utilizing Nanomaterial Modified Sensors |
| 3   | Savalia Rutesh      | Development and Application of Nanomaterial Based Sensors for Selective Determination of Pharmaceutical formulations in Biological Fluids |

**Dr. P. M. More**

| 1   | Nitin Lavande       | Total Oxidation of VOC and CO using modified Mn-Ce catalyst               |
| 2   | Rahul More          | Complete oxidation of VOC and CO using non noble metal catalyst           |
Dr. Dawande S. G.

<table>
<thead>
<tr>
<th>#</th>
<th>Name of the Student</th>
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<tbody>
<tr>
<td>1</td>
<td>Nilesh Kahar</td>
<td>Development of Novel Synthetic Methodologies using Transition Metal Carbo Metal Complexes</td>
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</table>

**M. SC. SEMINAR TOPICS**

A] **Awards**

<table>
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<tr>
<th>Name of the Student</th>
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<tbody>
<tr>
<td>Nisha Kadam</td>
<td>1st Prize in Oral presentation in Green chemistry and sustainable environment organized by B. S. Abdurrahaman university on 2-3 August 2016, Vendalur, Chennai</td>
</tr>
<tr>
<td>Ravishankar Kadam</td>
<td>1st Prize in Poster cum Oral presentation in national conference on “new frontiers in chemistry –from fundamentals to applications organised by Birla Institute of Technology and Science Pilani on 28th to 29th January, Goa Campus, Goa</td>
</tr>
<tr>
<td>Sitaram Gund</td>
<td>Awarded 1st prize for poster presentation in the National conference on New Vitas in Chemical Research organized by department of chemistry, The IIS university, Jaipur on 18th January – 19th January 2017 in Jaipur, India</td>
</tr>
<tr>
<td>Rutesh Savalia</td>
<td>Awarded Prime Minister’s Fellowship for Doctoral Research from Science &amp; Engineering Research Board, Department of Science and Technology, Government of India and Confederation of Indian Industry on 27th September 2016</td>
</tr>
<tr>
<td>Jyoti Dutta</td>
<td>Awarded 1st prize in poster presentation during the national symposium ‘Recent Developments in Synthesis and Catalysis’, organized by Department of Chemistry, Dibrugarh University on 10th and 11th March 2017 in Dibrugarh, Assam</td>
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</table>

B] **Oral and Poster Presentations by the Students**

<table>
<thead>
<tr>
<th>Name of Student</th>
<th>Paper/Poster</th>
<th>Details of Event</th>
<th>Title of Paper/Poster</th>
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<tbody>
<tr>
<td>Sonali Thakre</td>
<td>Oral</td>
<td>Green chemistry and sustainable environment organized by B. S. Abdurrahaman university on 2-3 August 2016, Vendalur, Chennai</td>
<td>Amino factionalized activated carbon in base catalyzed reaction</td>
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<tr>
<td>Nisha Kadam</td>
<td>Oral</td>
<td>Green chemistry and sustainable environment organized by B. S. Abdurrahaman university on 2-3 August 2016, Vendalur, Chennai</td>
<td>Reusable PEG based ionic liquid: a biphasic catalytic system for cyclization and condensation reactions</td>
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<tr>
<td>Name</td>
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<tr>
<td>Sonali Thakre</td>
<td>Oral</td>
<td>APCAT-7 organized by ICT on 17-21 Jan, Mumbai</td>
<td>Amino fictionalized activated carbon in base catalyzed reaction</td>
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<tr>
<td>Nisha Kadam</td>
<td>Oral</td>
<td>APCAT-7 organized by ICT on 17-21 Jan, Mumbai</td>
<td>PEG supported proline-liquid liquid biphasic catalyst in Knoevenagel condensation reactions</td>
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<tr>
<td>Ravishankar Kadam</td>
<td>Poster cum Oral</td>
<td>National conference on “new frontiers in chemistry – from fundamentals to applications organised by Birla Institute of Technology and Science Pilani on 28th to 29th January, Goa Campus, Goa</td>
<td>Hexagonal mesoporous silica-supported copper oxide (CuO/HMS) catalyst: synthesis of primary amides from aldehydes in aqueous medium</td>
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<tr>
<td>Nisha Kadam</td>
<td>Poster</td>
<td>National conference on “new frontiers in chemistry – from fundamentals to applications organised by Birla Institute of Technology and Science Pilani on 28th to 29th January, Goa Campus, Goa</td>
<td>PEG supported proline-liquid liquid biphasic catalyst in Knoevenagel condensation reactions</td>
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<tr>
<td>Amber Sahani</td>
<td>Poster</td>
<td>Green chemistry and sustainable environment organized by B. S. Abdurrahman University on 2-3 August 2016, Vendalur, Chennai</td>
<td>Catalytic activity of transition metal complexes for synthesis of diphenylselenides</td>
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<tr>
<td>Sonali Thakre</td>
<td>poster</td>
<td>International conference on environment management and sustainability, Organized by SIES on 4-6 Jan 2017, Nerul, Mumbai</td>
<td>Chemically modified agricultural waste in the removal of diclofenac sodium from waste water</td>
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<tr>
<td>Nilesh N. Korgavkar</td>
<td>Paper</td>
<td>National Conference, New Vistas in Chemical Research (NVCR-2017) organized at IIS University, Jaipur, on 18-19 January 2017.</td>
<td>1, 3-dipolar cycloaddition reaction of nitrile oxides with alkenes using imidazole and pyridine containing reusable polymeric base catalysts</td>
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<tr>
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<tr>
<td>Gopal Dhangar</td>
<td>Oral</td>
<td>National conference J-NOST at IIT Madras held on 7 Feb 2015.</td>
<td>Palladacycle catalysed homocoupling for the synthesis of hetero and homo aryl</td>
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<td>Gopal Dhangar</td>
<td>Poster</td>
<td>International conference APCAT-7 held on 2 Feb 2017 in Lalit Hotel, Mumbai</td>
<td>Palladacl complex catalysed C-C coupling reaction</td>
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<td>ShatruhnBhilare</td>
<td>Poster</td>
<td>NFCFA-II (New Frontiers In Chemistry – From Fundamentals To Applications-Ii), Bits Pilani, Goa, Jan 2017.</td>
<td>Novel Water-Soluble Phosphatrazienes: Ligands for Copper-Free Sonogashira and Column-Free Suzuki Coupling of Nucleosides</td>
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<tr>
<td>VidyaZende</td>
<td>Poster</td>
<td>APCAT - 7 (7th Asia-Pacific Congress on Catalysis), January 2017, Mumbai.</td>
<td>Synthesis &amp; Characterization of NHC ligands &amp; their application towards Aryalation of Anthracene &amp; Related Sub</td>
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<td>Prashant Gautam</td>
<td>Oral Presentation</td>
<td>APCAT-7 organized by Institute of Chemical Technology and Catalysis Society of India from 17th January 2017 to 21st January 2017 in Mumbai, India</td>
<td>Pd/C Catalyzed Phenoxy carbonylation Using N-Formyl saccharin as a CO surrogate in Propylene Carbonate as a Sustainable Solvent</td>
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<td>Vijyesh Vyas</td>
<td>Oral Presentation</td>
<td>APCAT-7 organized by Institute of Chemical Technology and Catalysis Society of India from 17th January 2017 to 21st January 2017 in Mumbai, India</td>
<td>Catalytic asymmetric synthesis of β-triazolyl amino alcohols by asymmetric transfer hydrogenation of α-triazolyl amino alkanones</td>
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<td>Prasad Kathe</td>
<td>Oral</td>
<td>APCAT-7 organized by Institute of Chemical Technology and Catalysis Society of India from 17th January 2017 to 21st January 2017 in Mumbai, India</td>
<td>Oxime Palladacycle Catalyzed Carbonylative Sonogashira Cross-Coupling with High Turnovers in PEG as a Benign and Recyclable Solvent System</td>
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<td>Rashi Gupta</td>
<td>Oral</td>
<td>APCAT-7 organized by Institute of Chemical Technology and Catalysis Society of India from 17th January 2017 to 21st January 2017 in Mumbai, India</td>
<td>Pd/C in Propylene Carbonate: A Sustainable Catalyst-Solvent System for the Carbonylative Suzuki-Miyaura Cross-Coupling using N-Formylsaccharin as a CO Surrogate</td>
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<td>Aravind L. Gajengi</td>
<td>Oral</td>
<td>New Frontier in Chemistry-From fundamental to application -II organized by BITS Pilani, K K Birla, Goa, from January 28th -29th 2017 in Goa, India</td>
<td>Room Temperature Synthesis of Copper Oxide Nanoparticles: Morphological Evaluation and Their Catalytic Applications for Degradation of Dyes and C–N Bond Formation Reaction</td>
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<td>Vithhal B. Saptal</td>
<td>Poster</td>
<td>New Frontier in Chemistry-From fundamental to application -II organized by BITS Pilani, K K Birla, Goa, from January 28th -29th 2017 in Goa, India</td>
<td>Current Advances in Heterogeneous Catalysts for the Synthesis of Cyclic Carbonates from Carbon Dioxide</td>
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<td>Rajendra Mane</td>
<td>Poster</td>
<td>New Frontier in Chemistry-From fundamental to application -II organized by BITS Pilani, K K Birla, Goa, from January 28th -29th 2017 in Goa, India</td>
<td>Palladium-Catalyzed Oxidative N-dealkylation/ carbonylation of Tertiary Amines with Alkynes to alpha,beta-Alkynylamides</td>
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<td>SamadhanJagtap</td>
<td>Poster</td>
<td>New Frontier in Chemistry-From fundamental to application -II organized by BITS Pilani, K K Birla, Goa, from January 28th -29th 2017 in Goa, India</td>
<td>Highly regio-selective hydroformylation of biomass derived eugenol using aqueous biphasic Rh/TPPTS/CDs as a greener and recyclable catalyst</td>
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<td>VrushaliRaut</td>
<td>Poster</td>
<td>“19th CRSI National Symposium in Chemistry &amp; CRSI-GDChAngewandteChemie Symposium, 13-16 July 2016, held at University of North Bengal, Darjeeling, India.</td>
<td>An efficient metal organic framework based electrocatalyst for effective oxygen reduction reaction (ORR)</td>
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<td>DaulatPhapale</td>
<td>Poster</td>
<td>“19th CRSI National Symposium in Chemistry &amp; CRSI-GDChAngewandteChemie Symposium, 13-16 July 2016, held at University of North Bengal, Darjeeling, India.</td>
<td>Controlling effect of DNA on molecular bistability in a chiral ruthenium sulfoxide complex incorporating dipyrido[3,2-a:2',3'-c]phenazine (dppz)</td>
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<tr>
<td>Kishor Balsane</td>
<td>Poster</td>
<td>New Frontiers in Chemistry-from Fundamentals to Applications (NFCFA 2017) organized by BITS PILLANI Goa Campus on 27th December – 29th December 2017 in Goa, India</td>
<td>Atom economic palladium catalyzed novel approach for arylation of benzothiazole and benzoxazole with triarylbumth reagents via C</td>
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<td>Ravindra Wagh</td>
<td>Poster</td>
<td>New Frontiers in Chemistry-from Fundamentals to Applications (NFCFA 2017) organized by BITS PILLANI Goa Campus on 27th December – 29th December 2017 in Goa, India</td>
<td>A simple metal free oxidation of sulfide compounds</td>
</tr>
<tr>
<td>Sitaram Gund</td>
<td>Poster</td>
<td>National conference on New Vitas in Chemical Research organized by department of chemistry, The IIS university, Jaipur on 18th January – 19th January 2017 in Jaipur, India</td>
<td>Palladium catalyzed desulfynylation couplings between aryl sulfinites and aryl bromide/iodide for the synthesis of biaryls</td>
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<tr>
<td>Mangesh Potangale</td>
<td>Poster</td>
<td>19th CRSI National Symposium in Chemistry (CRSI-NSC-19), organized by Department of Chemistry, University of North Bengal, Darjeeling, West Bengal on 14th-16th July 2016 in Darjeeling, Siliguri, India.</td>
<td>Vibrational Spectroscopic Study of N-methyl Pyrrolidinium Based Ionic Liquids</td>
</tr>
<tr>
<td>Jyoti Dutta</td>
<td>Poster</td>
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<td>Non Linear Effects in Interracial Aldol Reaction Catalyzed by Surfactant Based Proline Catalyst</td>
</tr>
<tr>
<td>Arun Valvi</td>
<td>Poster</td>
<td>National Conference on “New Frontiers in Chemistry - From Fundamentals to Applications”, organised by Department of Chemistry, Birla Institute of Technology and Science Pilani, K. K. Birla Goa Campus, India on 28th-29th January 2017 in Sancoale, Goa, India.</td>
<td>Concentration-dependent Solvent Effect on the SNAR Reaction between 1-fluoro-2,4-dinitrobenzene and Morpholine</td>
</tr>
<tr>
<td>Jyoti Dutta</td>
<td>Poster</td>
<td>National Seminar on Recent Development in Synthesis and Catalysis, organised by Department of Chemistry, Dibrugarh University on 10th-11th March 2017 in Dibrugarh, Assam, India.</td>
<td>Non Linear Effects in Interracial Aldol Reaction Catalyzed by Surfactant Based Proline Catalyst</td>
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<tr>
<td>Name of Student</td>
<td>Seminar topic</td>
<td>Seminar Guide</td>
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<tr>
<td>Ameya Tambe</td>
<td>‘ Allylic Oxidation Using Selenium Dioxide ’</td>
<td>Dr. Anant R. Kapdi</td>
<td></td>
</tr>
<tr>
<td>Arzoo Chhabra</td>
<td>Implication of TPSO on brain injuries</td>
<td>Dr. A. Vijaykumar</td>
<td></td>
</tr>
<tr>
<td>Karishma Inamdar</td>
<td>Matrix Metalloproteinases application and its role in cancer</td>
<td>Dr. Kaustubh A. Joshi</td>
<td></td>
</tr>
<tr>
<td>Nikita Chitre</td>
<td>Study of hydrogen bonding interactions in Ionic liquids (ILs) using IR spectroscopy</td>
<td>Shraeddha Tiwari</td>
<td></td>
</tr>
<tr>
<td>Noopur Dedhia</td>
<td>Inverse Electron Demanding Diels-Alder Reactions in the Asymmetric Synthesis of Nitrogen Heterocycles</td>
<td>Dr. Dawande S. G.</td>
<td></td>
</tr>
<tr>
<td>Prasenjit Srivastava</td>
<td>Femtosecond Spectroscopic Study of Photodissociation of Alkali Metal Halides</td>
<td>Shraeddha Tiwari</td>
<td></td>
</tr>
<tr>
<td>Priya Singh</td>
<td>Use of Organocatalyst in Asymmetric reduction of Prochiral ketones into chiral alcohol</td>
<td>Prof. B. M. Bhanage</td>
<td></td>
</tr>
<tr>
<td>Rashi Gupta</td>
<td>Photoinduced Linkage Isomerisation in Ruthenium Sulfoxide Complexes</td>
<td>Dr. Dipanwita Das</td>
<td></td>
</tr>
<tr>
<td>Sneha Chavan</td>
<td>Partial Oxidation of Alcohols to Aldehydes by Heterogeneous Catalysis</td>
<td>Dr. P. M. More</td>
<td></td>
</tr>
<tr>
<td>Tanmoya Pradhan</td>
<td>Total Synthesis of Azadirachtin</td>
<td>Dr. A. Vijaykumar</td>
<td></td>
</tr>
<tr>
<td>Utkarsha Jamsandekar</td>
<td>Study of palladacycle as catalyst in Heck Coupling reaction</td>
<td>Prof. B. M. Bhanage</td>
<td></td>
</tr>
<tr>
<td>Vaishnavi Sharma</td>
<td>Epoxidation of alkene using heterogeneous catalyst</td>
<td>Dr. P. M. More</td>
<td></td>
</tr>
<tr>
<td>Vishal Kanojia</td>
<td>Oxallyl cations and their variations in cycloaddition reactions</td>
<td>Dr. S. G. Dawande</td>
<td></td>
</tr>
<tr>
<td>Archana Kushwaha</td>
<td>Synthesis, Characterization and Photocatalytic Application of Zno, Ag Nanoparticle</td>
<td>Dr. J. M. Nagarkar</td>
<td></td>
</tr>
<tr>
<td>Vishal Mishra</td>
<td>Minoxidil: A Retrospective Study of its Pharmacological Properties and Therapeutic Use for Alopecia Treatment</td>
<td>Dr. Sanghamitra Chatterjee</td>
<td></td>
</tr>
<tr>
<td>Vishal Tandel</td>
<td>Reductions using modified sodium borohydride reagents.</td>
<td>Prof. S.D. Samant</td>
<td></td>
</tr>
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<td>Name of Student</td>
<td>Title of the research project</td>
<td>Research Supervisor</td>
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<tr>
<td>Ameya Tambe</td>
<td>Metal-Free Approach Towards the Synthesis of Chromen-2-benzensulfonamides</td>
<td>Dr. A. Vijay Kumar</td>
<td></td>
</tr>
<tr>
<td>Archana Kushwaha</td>
<td>Development of a Series of Benzimidazole Derivatives and Their Application</td>
<td>Dr. Dipanwita Das</td>
<td></td>
</tr>
<tr>
<td>Arzoo Chhabra</td>
<td>β-cyclodextrin functionalized reduced grapheme oxide: a hydrophobic drug delivery system</td>
<td>Prof. R. V. Jayaram</td>
<td></td>
</tr>
<tr>
<td>Karishma Inamdar</td>
<td>Mixed Metal oxide catalyst for the synthesis of Heterocyclic ring</td>
<td>Prof. R. V. Jayaram</td>
<td></td>
</tr>
<tr>
<td>Nikita Chitre</td>
<td>Design of Electrochemical Sensors for the Determination of Biologically Important Compounds</td>
<td>Dr. Sanghamitra Chatterjee</td>
<td></td>
</tr>
<tr>
<td>Noopur Dedhia</td>
<td>Exploring C-C bond forming Cross Dehydrogenative Coupling reactions</td>
<td>Dr. A. Vijay Kumar</td>
<td></td>
</tr>
<tr>
<td>Olviya Gonsalves</td>
<td>Nucleoside Based Molecular Wire Assembly Using Sonogashira Coupling Reactions</td>
<td>Dr. Anant R. Kapdi</td>
<td></td>
</tr>
<tr>
<td>Prasenjit Shrivastava</td>
<td>Asymmetric Synthesis</td>
<td>Prof. B. M. Bhanage</td>
<td></td>
</tr>
<tr>
<td>Priya Singh</td>
<td>Bromination Study of 2,2,4-Trimethyl-1,2-dihydroquinoline.</td>
<td>Prof. S. D. Samant</td>
<td></td>
</tr>
<tr>
<td>Rashi Gupta</td>
<td>Studies in Carbonylation Reactions</td>
<td>Prof. B. M. Bhanage</td>
<td></td>
</tr>
<tr>
<td>Sneha Chavan</td>
<td>Effect of Addition of Polar Protic Solvent to Deep Eutectic Solvents: Excess Infrared Spectroscopic Study</td>
<td>Shraeddha Tiwari</td>
<td></td>
</tr>
<tr>
<td>Tanmoya Akash Pradhan</td>
<td>Modification of Nucleosides Using Heck and Suzuki Cross-Coupling Reactions</td>
<td>Dr. Anant R. Kapdi</td>
<td></td>
</tr>
<tr>
<td>Utkarsha Jamsandekar</td>
<td>Excess Absorption Infrared Spectroscopic Study of Mixtures of Deep Eutectic Solvents and Polar Aprotic Solvents</td>
<td>Shraeddha Tiwari</td>
<td></td>
</tr>
<tr>
<td>Vaishnavi Sharma</td>
<td>Investigating Silicon based potential Non-nucleoside reverse transcriptase inhibitors: a theoretical study</td>
<td>Kaustubh A. Joshi</td>
<td></td>
</tr>
<tr>
<td>Vishal Kanojia</td>
<td>Mixed metal oxides as selective catalyst for the oxidation of alcohols</td>
<td>Prof. R. V. Jayaram</td>
<td></td>
</tr>
<tr>
<td>Vishal Mishra</td>
<td>Michael addition of benzyldine acetophenones and malononitrile in presence of polymeric base poly-1-(4-vinylbenzyl)imidazole.</td>
<td>Prof. S. D. Samant</td>
<td></td>
</tr>
<tr>
<td>Vishal Tandel</td>
<td>Development of Novel Transannulation Reactions of N-sulfonyl-1,2,3-triazoles with Epoxides</td>
<td>Dr. Dawande S. G.</td>
<td></td>
</tr>
</tbody>
</table>
M. TECH. (GREEN TECH.) PROJECTS FOR THE ACADEMIC YEAR
I.E. 2016–17

<table>
<thead>
<tr>
<th>Name of Student</th>
<th>Title of the research project</th>
<th>Research Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amid Sadgar</td>
<td>Mix metal oxide as solid bases in catalysis</td>
<td>Prof. R. V. Jayaram</td>
</tr>
<tr>
<td>Aradhana Menon</td>
<td>Mesoporous silica as a gated drug delivery system</td>
<td>Prof. R. V. Jayaram</td>
</tr>
<tr>
<td>Adarsh A. Patel</td>
<td>Studies in Nickel Catalysis</td>
<td>Prof. B. M. Bhanage</td>
</tr>
</tbody>
</table>

C] PRIZES UNDER THE CMP ENDOWMENT:

1. M.Sc.(Chemistry) Best Student Award (Batch 2016-17)
   Mr. Prasenjit Srivastava – Rs. 5000/- cash prize and Certificate

2. Prize for First Rank in M.Sc. (Chemistry) from batch of 2015 -16
   Mr. Fernandes Clinton - Rs.5000/-Cash Prize & Certificate

3. Prize for Second Rank in M.Sc. (Chemistry) from batch of 2015-16
   Mr. Londhe Srikant - Rs.3000/-Cash Prize & Certificate

4. Prize for Third Rank in M.Sc. (Chemistry) from batch of 2015-16
   Mr. Kathe Prasad Mahesh - Rs.2000/-Cash Prize & Certificate

**CMP Endowment Award for Best Teacher** - Dr. Shraeddha Tiwari
RESEARCH GROUP:
Centre: Prof. R. V. Jayaram
From L to R: Tushar, Amber, Datta, Annu, Kavita, Sonali P., Dr.Anjana, Ravi, Sonali T., Deepak, Nisha, Bhumika, Thomson

Research Group:
From L to R:
1st Row: Sachin Bhagade, Deepak Nale, Kishor Wagh, Prof. B. M. Bhanage, Nilesh Patil, Ashwini Mathpati, Kripa Subramaniam.
4th Row: Clinton Fernandes, Prashad Kathe, Dilipkumar Yadav, Manohar Bhosale, Jayendra Ahire, Santosh Revankar, Amol Raut, Vitthal Saptal
Research Group:
From L to R: Prateek Jain, Prof. S. D. Samant, Nilesh Korgaonkar

Photograph of Research Group:
Prof. (Mrs.) J. M. Nagarkar Research Group
Left to Right: Ravindra Wagh, Jeevan Bhojane, Prof. (Mrs.) J. M. Nagarkar, Sitaram Gund, Vilas Jadhav, Sachin Sarode, Kishor Balsane
Right to Left: Dharmendra Prajapati (Ph.D. student), Aniket Gholap (Ph.D. Student), Sai Vengurlekar (Project Assistant), Ajay Ardhapure (Ph.D. student), Tejpal Girase (Ph.D. student), Dr. Anant R. Kapdi, Gopal Dhangar (Ph.D. student), Vidya Zende (Ph.D. student), Rashila Gund (Project Assistant), Safiya Rehman (Project Assistant), Vaibhav Sable (Ph.D. student), Shatrughna Bhilare (Ph.D. student).

Research Group:
From L to R: Ms. Rani Patil, Mr. Mahendra Patil, Dr. Vijay Kumar, Mr. Prashant Mandal, Mr. Abhishek Dubey
Research Group:
From L to R: Shilpa Nath, Kaustubh Joshi, Sudheer Kurup, Snehal Ingle

RESEARCH GROUP:
From L to R: Jyoti, Nutan, Dr. Shraeddha Tiwari, Mangesh, Viraj, Arun

RESEARCH GROUP:
From L to R: Daulat, Archana, Vrushali, Dr. Dipanwita Das, Uddipana, Sagar, Harshawardhan
RESEARCH GROUP:
From L to R: Rutesh Savalia, Suyash Mane, Dr. Sanghamitra Chatterjee, Pravin Tarlekar, Nikita Chitre

From L to R: Rahul More, Nitin Lavande

RESEARCH GROUP:
From L to R: Nilesh Gaikwad, NileshKahar, Pankaj Jadhav, Chinmay Pradhan