PANDIT DEENDAYAL ENERGY UNIVERSITY
A RESERVOIR OF KNOWLEDGE

UGC RECOGNIZED

PDEU
PANDIT DEENDAYAL ENERGY UNIVERSITY

Formerly Pandit Deendayal Petroleum University (PDPU)

NAAC
Accreditation
'A' Grade
(CGPA 3.39/4.0)

An only University in Gujarat
Granted with
GRADED AUTONOMY
by UGC

SOT
SCHOOL OF TECHNOLOGY

http://sot.pdpu.ac.in/Chemistry-dept.html

MISSION

Department of Chemistry of the School of Technology offers well-designed program curricula to provide in-depth knowledge related to the application of Chemical Sciences and inculcate scientific temper to students interested in the Engineering and Technology.

In order to contribute and to provide assistance to PDEU to achieve its mission of academic excellence, the program integrates a judiciously-designed comprehensive curriculum and a research module for a sound academic, professional, and personal development of students..

http://sot.pdpu.ac.in/Chemistry-dept.html

VISION

"The Department has a vision to graduate admitted students as life-long learners and leaders in the diverse Chemistry programs. "

http://sot.pdpu.ac.in/Chemistry-dept.html

OBJECTIVE OF THE DEPARTMENT

- To create and maintain the programs of excellence in the areas of research, education and public outreach.
- To promote, inspire and nurture the fundamentals of chemistry through M.Sc. courses offered for the basic sciences students.
- To offer research projects with high emphasis on concept-theory-practical training to build up research interest for the transformation of budding chemists into productive scientists, excellent teachers, entrepreneurs and innovative independent researchers.
- Our specific goal is to become a nationally recognised department of chemical sciences for modern education with a state of art research facility.
- To aspire for excellence in chemical education and research.
- To prepares students for a diverse and changing world.
- Contribute to a chemically literate society through teaching (with classrooms, labs, and research) and service.
- Strong cross-disciplinary collaborations both within and outside the university.
- The Department of chemistry aims to be recognised in (1) student success in the chemical sciences, (2) research contributions and impact, and (3) disciplinary engagement. This will be accomplished by leveraging our strengths, urban location, and student, faculty, and staff capabilities.

Philosophy of the Program

The Department pursues the following primary objectives:

Create an academic environment which promotes the intellectual and professional development of students and faculty.

Develop and maintain a commitment to scholarly activities in research and education which is commensurate with the goals and mission of PDPU.

Train M.Sc. students in the theoretical and practical skills required for employment or admission to higher education.

The training of M.Sc. chemists in the theory of chemistry, the ability to conduct independent research, the clear expression of scientific ideas, and the teaching of chemistry.

Provide programs for all students which meet the educational and technical demands of the sub-disciplines represented in the Department.

Offer courses in cognate academic disciplines and professional fields which provide the necessary base for the career goals of students and faculty.

Provide the public with service commensurate with a University.

Implicit in these objectives is our responsibility as teachers, which includes but is not limited to, educating students and providing continuing education while promoting and clarifying the role and philosophy of education.

A strong commitment to research means creating and maintaining a rigorous intellectual environment and achieving our broader commitments to the advancement of knowledge and service to the public.

Eligibility Criteria

B.Sc./B.Sc.(Hons) with Chemistry/Applied Chemistry/Industrial Chemistry as a major subject or equivalent degree in offered specialization with minimum 50% marks aggregate of all semester/years or CPI 6.0 on 10 point scale or equivalent score from a recognized university/institute.

Our Strength

- Curriculum based on NET, GATE, JEST.
- Project Based Learning
- Student Research Projects funded by University
- Internship in Start-up Projects
- International Exposure Programme
- Highly qualified team of faculty members graduated from IITs, NITs etc. and with postdoctoral experience abroad.
- Curriculum designed based on current and futuristic industry-academia demand
- Industry oriented specialization in Organic, Analytical, Industrial and Pharmaceuticals chemistry
- Credit based stream elective concept to allow the student have in depth understanding
- Exposure to applied research at early stage of the program
- Scholarships to students
- More than 50 % of lab and research work to train them for future projects in academic research.
- Industry collaboration and internships

M.Sc. Chemistry Course Structure

SEM 1

1. Organic Chemistry-I
2. Organic Chemistry-I Practical
3. Inorganic Chemistry-I
4. Inorganic Chemistry-I Practical
5. Physical Chemistry-I
6. Physical Chemistry-I Practical
7. Analytical Chemistry-I
8. Analytical Chemistry-I Practical
9. Environmental and Green Chemistry

Total Credits: 19

SEM 2

1. Organic Chemistry-II
2. Organic Chemistry-II Practical
3. Inorganic Chemistry-II
4. Inorganic Chemistry-II Practical
5. Physical Chemistry-II
6. Physical Chemistry-II Practical
7. Analytical Chemistry-II
8. Analytical Chemistry-I Practical
9. Theoretical & Computational Chemistry
10. Theoretical & Computational Chemistry Practical

Total Credits: 28

M.Sc. Mathematics Course Structure

SEM 3

1. Stream elective-I
2. Stream elective-II
3. Stream elective-III
4. Stream elective-IV
5. Stream elective-V
6. Stream Elective Lab*
7. Research Methodology
8. Research Project Phase I*

Total Credits: 20.5

SEM 4

1. Research Project (Experiment, Dissertation & Seminar)

Total Credits: 40

Total Credits: 21

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Stream Electives Theory

- Analytical Chemistry
- I. Atomic & Molecular Spectroscopy
- II. Advanced Instrumental Techniques-I
- III. Advanced Instrumental Techniques-II
- IV. Electro Analytical and Radio Analytical Methods of Analysis
- V. Method Development and Validation
-
- Pharmaceuticals Chemistry
- I. Chemical Biology
- II. Medicinal Chemistry-I
- III. Medicinal Chemistry-II
- IV. Pharmaceutical Chemistry and Biochemistry
- V. Formulation Development
-
- Industrial Chemistry
- I. Paints, pigments & cosmetics
- II. Polymer Chemistry & Composite Materials
- III. Materials and Nano Chemistry
- IV. Fine chemicals (Petrochemicals, oil, soap and pesticides)
- V. Petroleum Chemistry & Catalysis
-
- Organic Chemistry
- I. Reagents and Organic synthesis
- II. Stereochemistry and Photochemistry
- III. Heterocycles and vitamins
- IV. Chemistry of Natural Products
- V. Asymmetric synthesis/catalysis

Stream Elective Lab

- Course Code Subject
- 20MSC631P Analytical Chemistry Lab
- 20MSC632P Pharmaceuticals Chemistry Lab
- 20MSC633P Industrial Chemistry Lab
- 20MSC634P Organic Chemistry Lab

Faculties and their Research Areas

http://sot.pdpu.ac.in/Chemistry-dept.html

OUR STRENGTH (Faculty)

Dr. Rajib Bandyopadhyay
Ph.D. NCL Pune

Dr Manoj Kumar Pandey
Ph.D. IIT Kanpur

Dr Anirban Das
Ph.D. PRL, Ahmedabad

Dr. Nitin Chaudhari
Ph.D. Korea University

Dr Tapan Kumar Pal
Ph.D. IIT Kanpur

Dr Balanagulu Busupalli
Ph.D. NCL Pune

Dr Ranjan Kumar Pati
Ph.D. IIT Kharagpur

Dr Kalisadhan Mukherjee
Ph.D. IIT Kharagpur

Dr. Rama Gaur
Ph.D. IIT Roorkee

Dr Prakash Chandra
Ph.D. NCL Pune

Dr Syed Shahabuddin
Ph.D. Univ. of Malaya

Dr. Nandini Mukherjee
Ph.D. IISc, Bangalore

Dr. Anu Manhas
Ph.D. Central Univ. Guj

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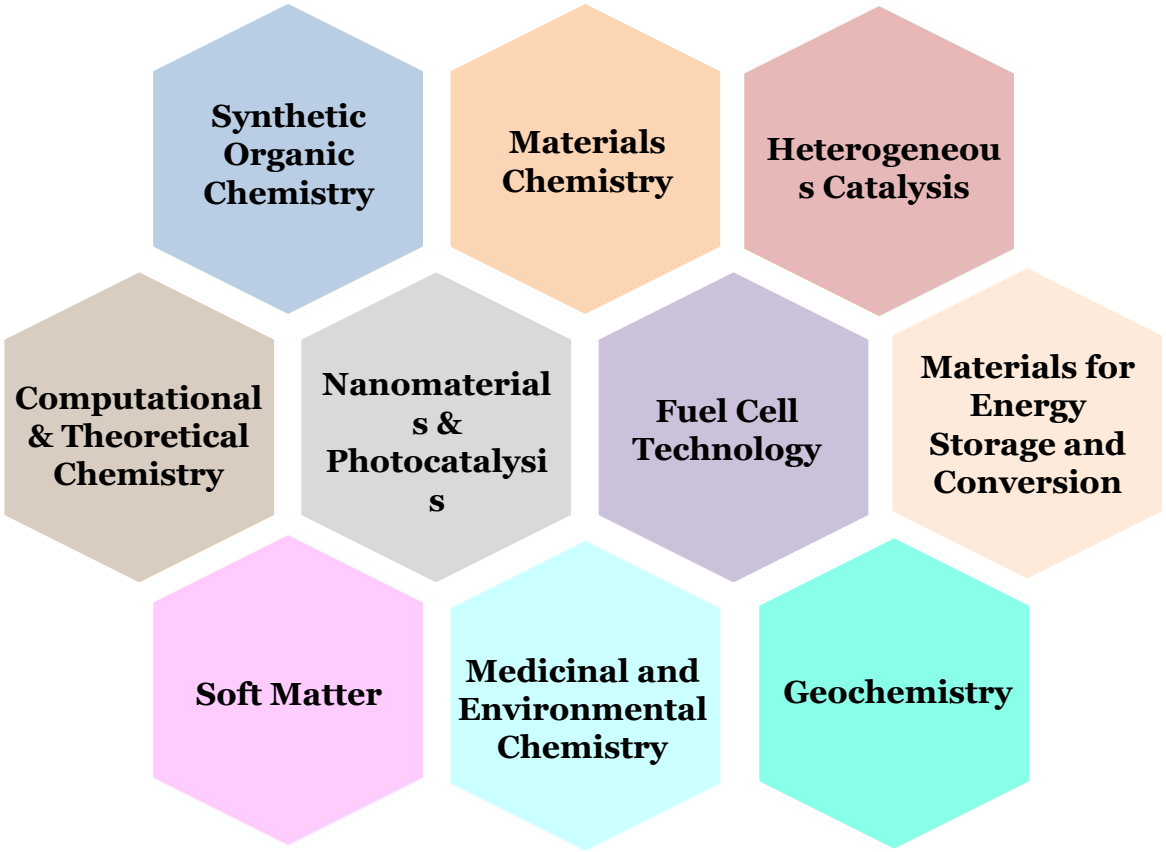
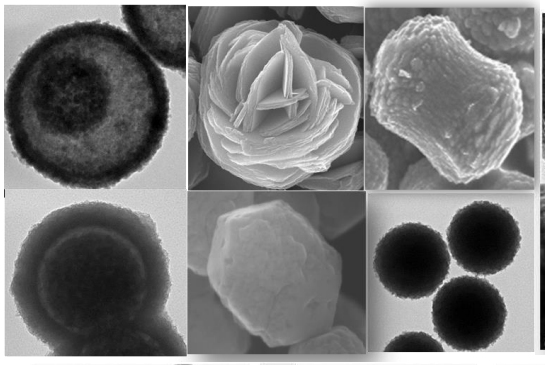
AREAS OF RESEARCH

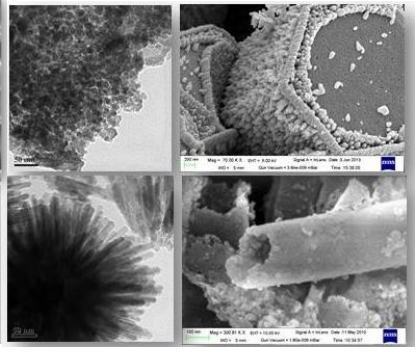


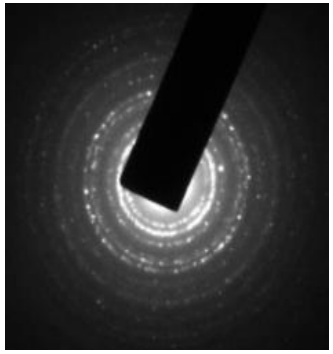
LABORATORY

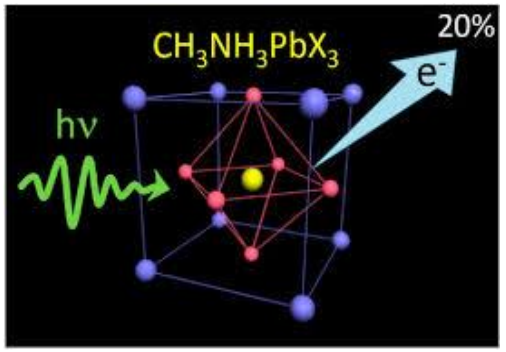
1. Chemistry Laboratory **2. Materials Characterization Laboratory** **3. Solar Research Lab**

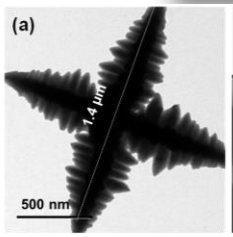
Materials Chemistry

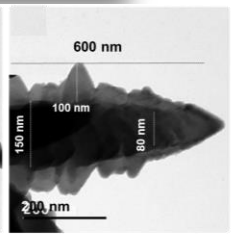


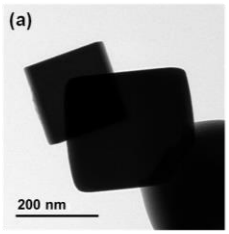


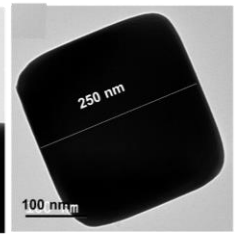


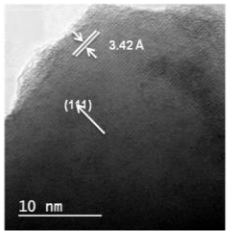


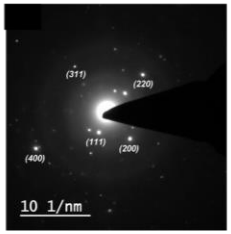


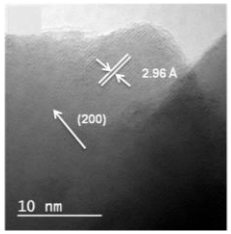


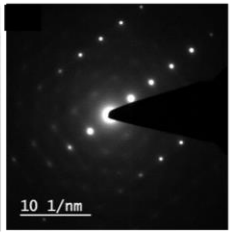


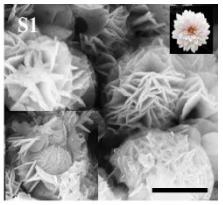


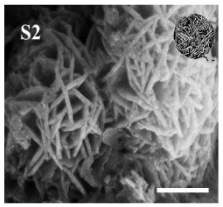


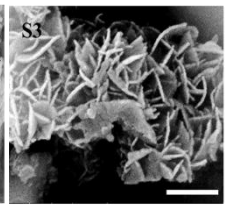


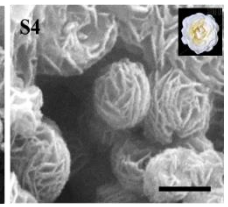


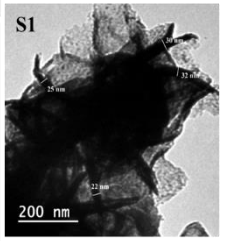


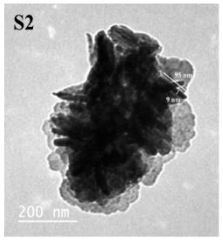


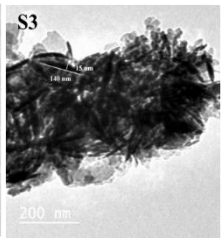


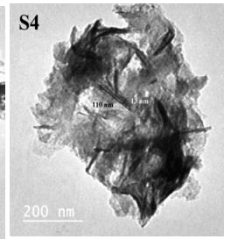




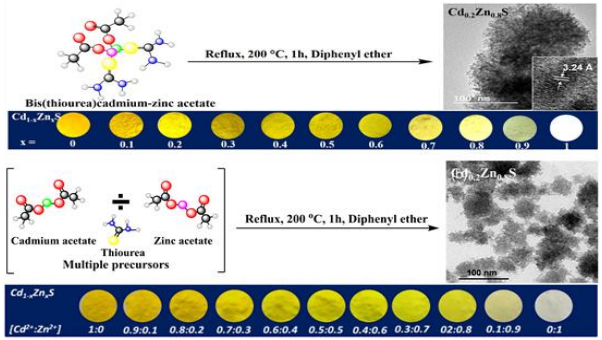




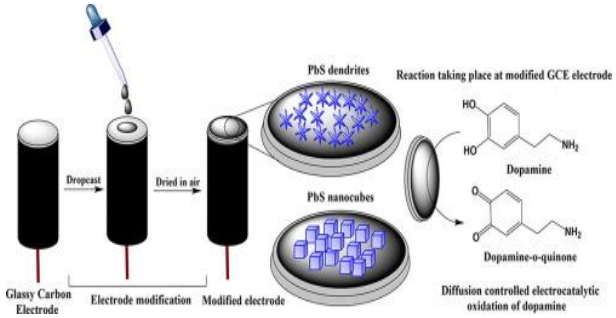




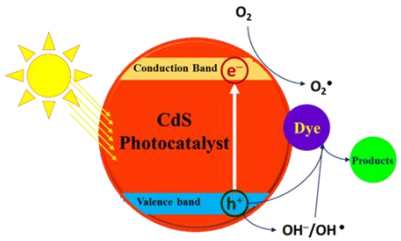
Materials for Sensing, Energy Storage and Conversion



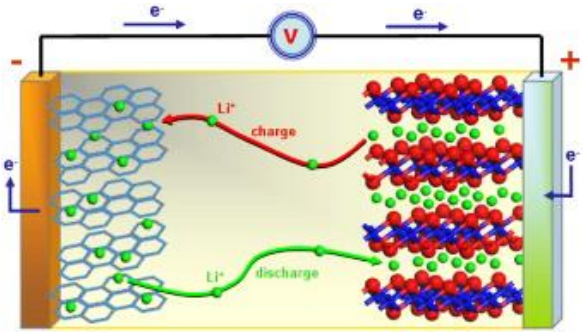
Solid solutions via single molecular precursor approach



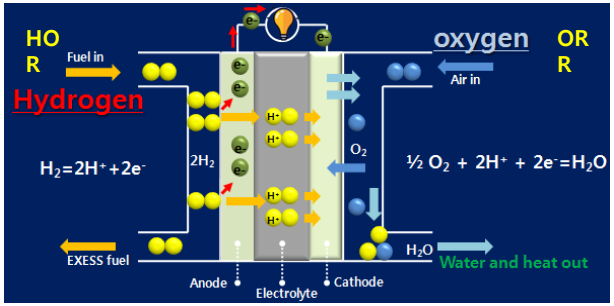
Electrochemical Sensing of Dopamine



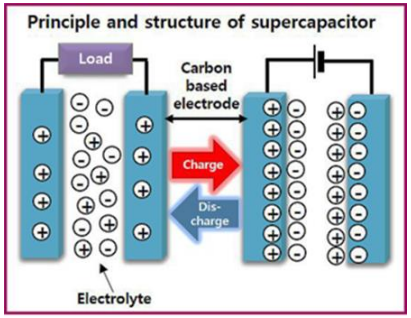
Dye Degradation



Lithium Battery



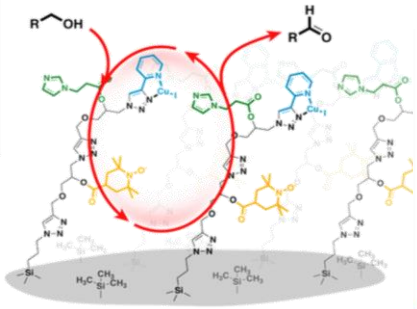
HER/OER Reactions

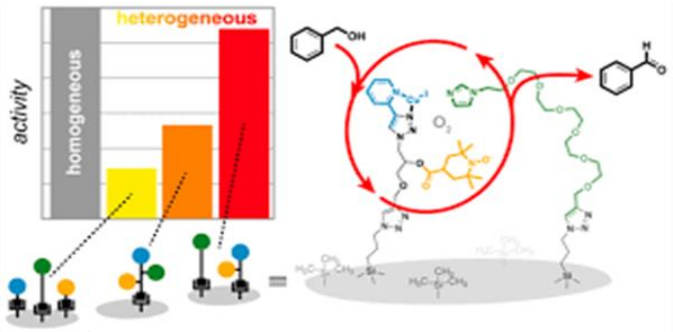


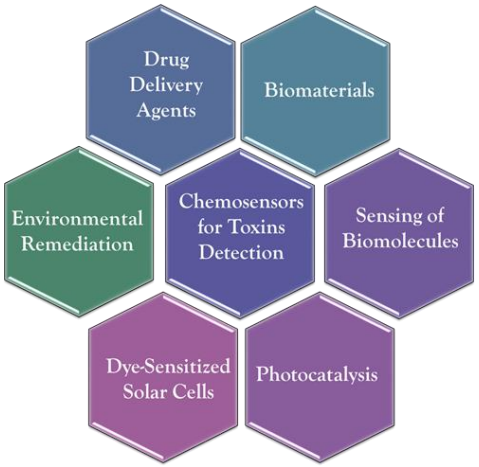
Energy storage

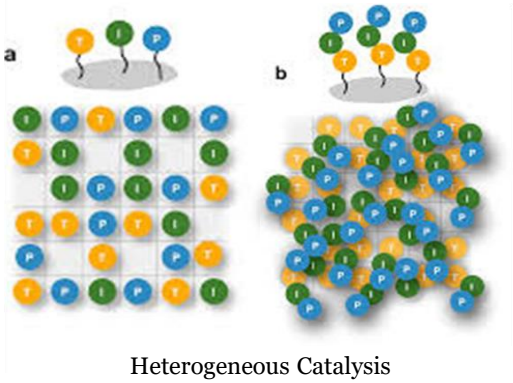
Medicinal and Environmental Chemistry & Heterogeneous Catalysis

ADD Photo Here



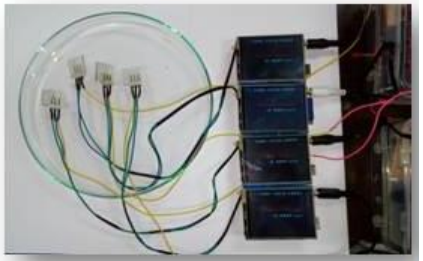






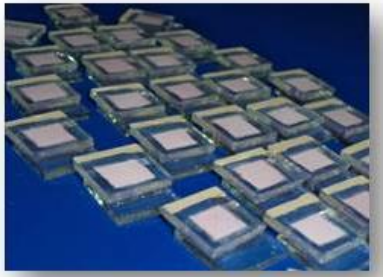
Heterogeneous Catalysis

Nanomaterials for Sensing and Photocatalysis

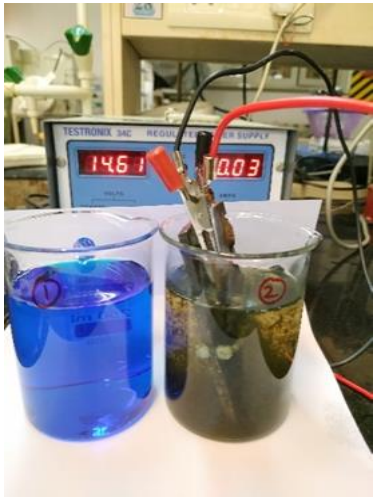


Electrochemical sensor

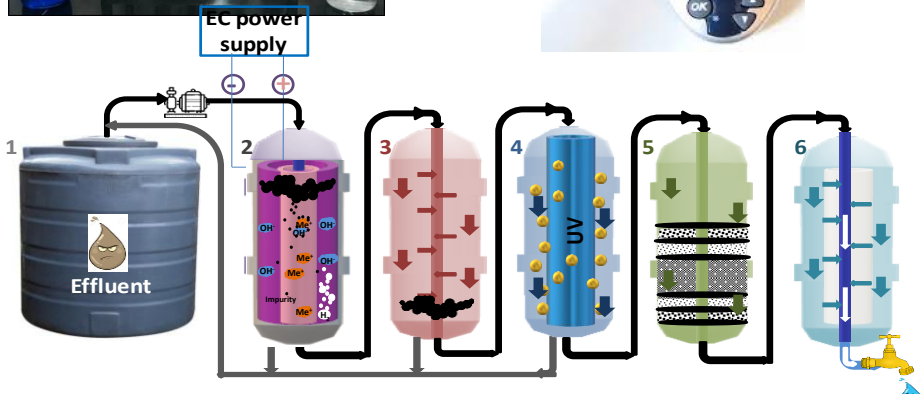
Chemi-resistive sensor



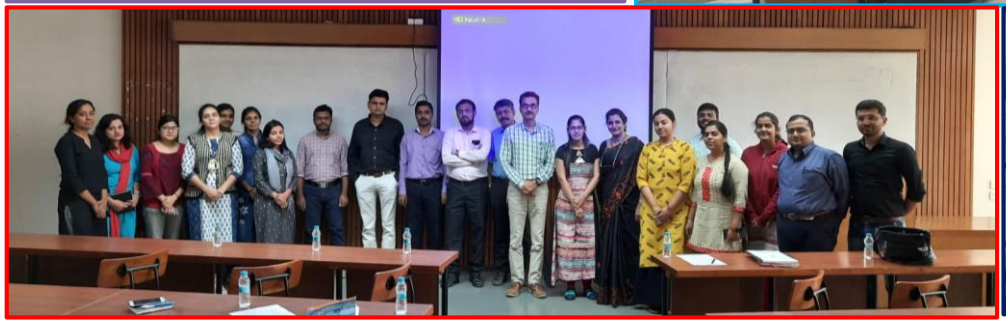
Solar cell



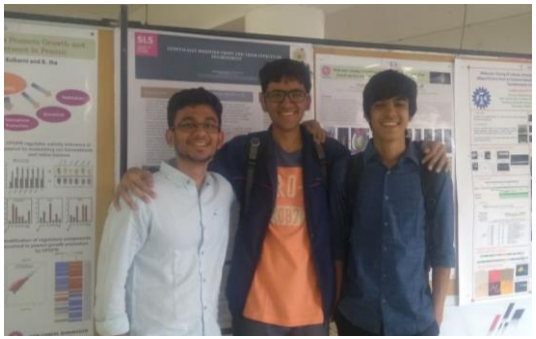
Domestic defluoridation unit

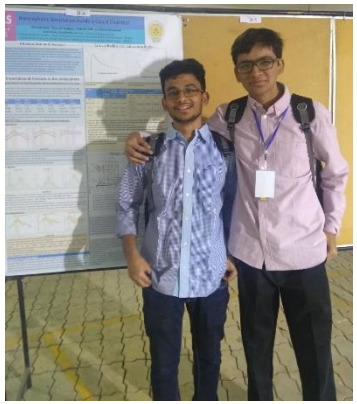


Departmental Activities

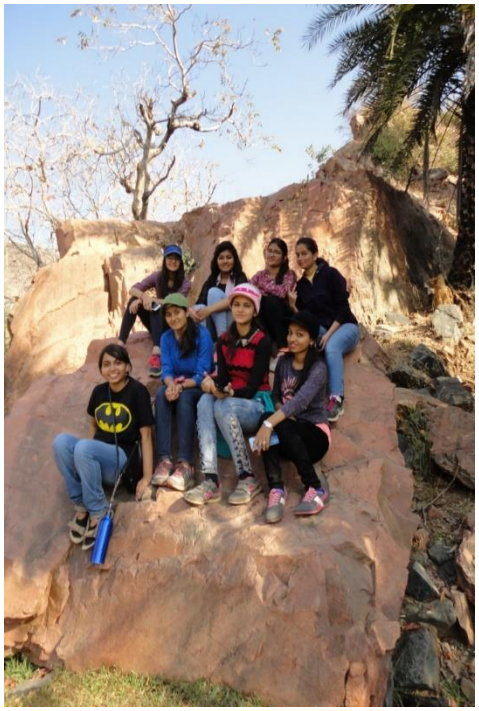


Co-Curricular Activities
Industrial visit/Tech-fest/Educational trips





Extra curricular Activities



Rural Internship @Kutch, Gujarat

We Believe

in learning by doing
in training future
in quality education
in growing together
in making a DIFFERENCE