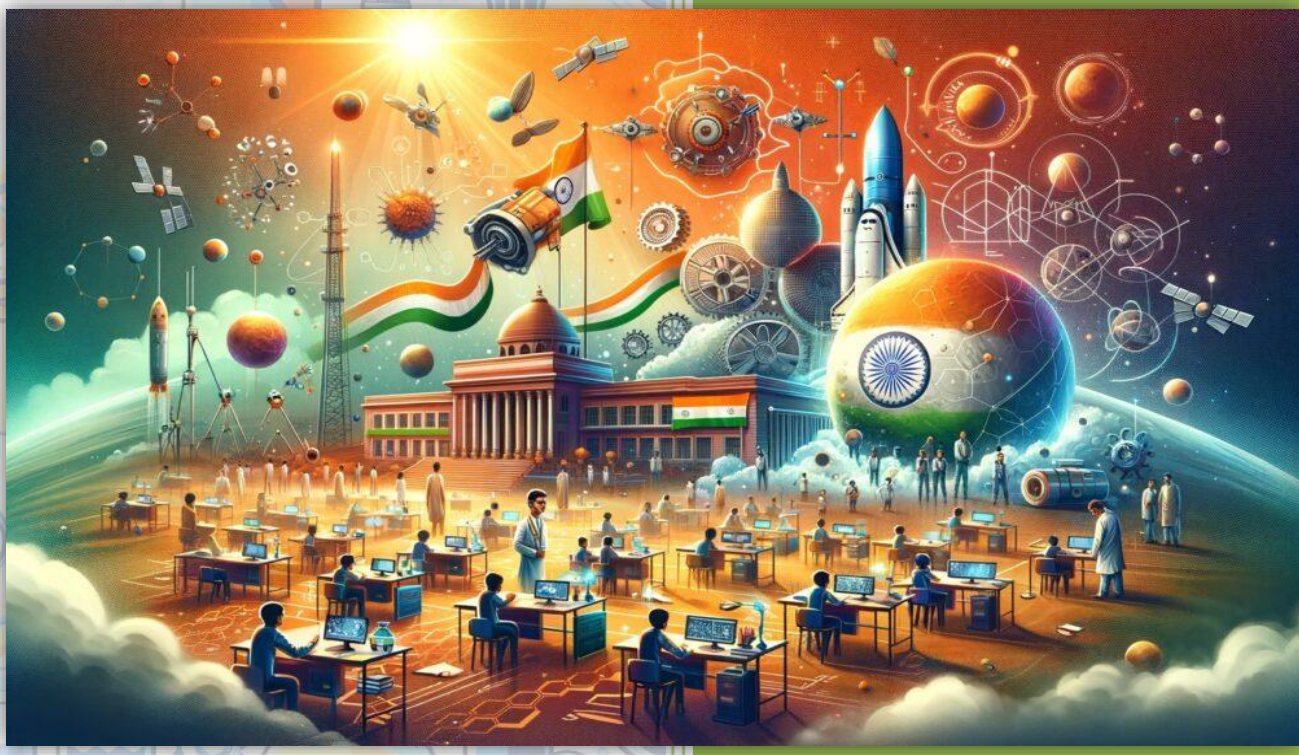
30th Regional Conference of Odisha Chemical Society and National Conference on "Recent Developments in Material Science and its Societal Applications for achieving Vikshit Bharat"

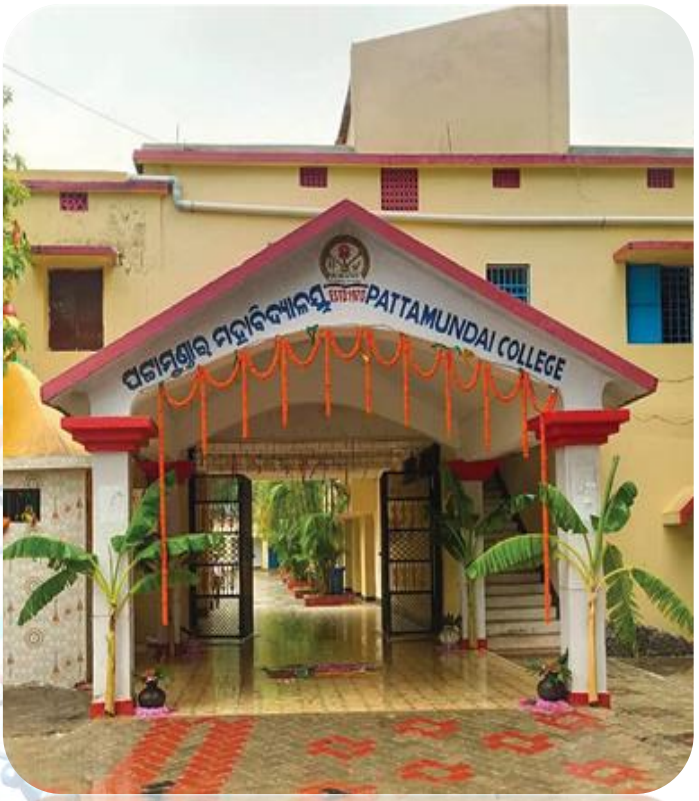


Organised by Department of Chemistry Pattamundai College, Pattamundai and Odisha Chemical Society.

21st November, 2025

Sponsored by Department of Science and Technology, Govt. of Odisha.

General Information about College



Founded in 1970, Pattamundai College has built a strong reputation for fostering excellence. A dedicated academic Faculty and committed non-teaching staff ensure a safe and conducive learning environment for the students. It offers a well-rounded educational experience, incorporating lectures, Conferences, workshops, presentations, and Seminars to engage students with diverse ideas and develop a knack for scientific temper. This premier institute has been enriching the educational and the social landscape for the past fifty-four years. The college is NAAC accredited with B grade.The Department of Chemistry in association with IQAC, Pattamundai College, Pattamundai, is organising a National Conference entitled as "**Recent Developments in Material Science and its Societal Applications for achieving Vikshit Bharat**" on 21st November, 2025 at 9.30 a.m. in association with Odisha Chemical Society.

Genesis of the Department

Pattamundai College a Premier Higher Educational institution in the District of Kendrapara ,Odisha situated at the close vicinity of Pattamundai Municipality. This noble institution boasts to have an opportunity to open Science Straem in Degree Level during 1989-90 & Chemistry Honours with 16-seats during 1994-1995 which is converted in to 24- seats during 2019-2020.Except Chemistry Honours the Electives Subject in Chemistry designed is Compulsory for other Science Honours Students as per the model Syllabus designed by Utkal University ,Vani Vihar Bhubaneswar.

How to Reach this Institution

A direct bus to the Pattamundai bypass or bus stand can be taken from the Baramunda ISBT bus stop in Bhubaneswar or the Badambadi bus stop (also known as CNBT) in Cuttack. The journey takes around three to four hours. Upon arrival, an auto-rickshaw can be taken to Pattamundai College. The total fare for the journey would be around 200 INR.

About the Conference

Chemical science plays a foundational role in addressing modern-day global challenges, ranging from environmental degradation and energy scarcity to disease management and sustainable development. The emergence of specialized branches such as nanotechnology, green chemistry, and supra-molecular chemistry has redefined the boundaries of scientific innovation.

This national Conference aims to bring together distinguished scientists, researchers, industry professionals, academicians, and students to share knowledge and insights into recent breakthroughs in chemical science and how they are shaping industries and societal well-being.

This Conference seeks to provide a collaborative platform for exploring and disseminating recent advancements in material science and to evaluate their relevance and application to societal development and sustainability in context of vikshit Odisha and vikshit Bharat.

Abstract

Recent Developments in Material Science and its Societal Applications for achieving Vikshit Bharat

Material science plays a crucial role in India's vision of a Vikshit Bharat (developed India) by 2047 in areas like self reliance, sustainable development and technological advancement. By focusing on research and innovation in materials, India can create advanced technical skills, reduce dependency on importing materials and can build a more sustainable future.

Emerging interdisciplinary fields like material science and bio-engineering with revolutionary development in healthcare, manufacturing requisite equipments for industrial use and sustainability. Agriculture must focus on smart farming and nutritious crops to eliminate poverty and malnutrition. Therefore our country can't progress without a strong foundation in material science.

Nanotechnology has revolutionized material science by enabling manipulation at the atomic and molecular levels (1–100 nm). Tailored nanoparticles now serve crucial roles in medicine, electronics, agriculture, and energy. Gold and silver nanoparticles are used in targeted drug delivery and diagnostic imaging, while nanosensors support early disease detection. Nanocomposites enhance material performance, and nanofertilizers and pesticide carriers promote sustainable agriculture. Advances also include colloidal semiconductor nanocrystals, core-shell structures, and functional nanoparticles for biomedical and energy applications.

Chemistry also enables the development of efficient fertilizers, pesticides and crop protecting chemicals leading to increase in agricultural productivity and food. Sustainable agriculture is now an emerging field best fitted for real development of our country.

For advancement of health care we need knowledge on diagnostics, better vaccine, new research on medicines and enhanced overall wellbeing. Polymers and supramolecular chemistr**y** have given rise to smart materials with applications in biomedicine and electronics. Innovations include biodegradable, self-healing, and conductive polymers, as well as stimuli-responsive systems used in drug delivery and wearable devices. Supramolecular chemistry leverages non-covalent interactions to create dynamic assemblies like molecular machines and responsive gels. These developments

contribute to nanomedicine, soft robotics, and sensor technologies. Research also spans polymer crystallization, blends, nanocomposites, and biomolecular hybrids.

Research development technology for pollution monitoring, waste managementwater and air purification can help to improve the environmental quality. Solvent-free reactions, recyclable catalysts, and the use of CO_2 as a raw material. Techniques such as enzymatic catalysis and photoredox reactions enable eco-friendly synthesis. Green chemistry supports environmental safety, economic efficiency, and the UN Sustainable Development Goals.

Drug development has been accelerated through synthetic organic chemistry, molecular modeling, and high-throughput screening. AI and computational tools now aid in optimizing lead compounds. Methods such as structure-activity relationship (SAR) studies, combinatorial, and click chemistry speed up discovery. Innovative drug delivery systems, including liposomes, dendrimers, and nanoparticles, improve efficacy. The COVID-19 pandemic highlighted the power of rapid innovation, as seen in mRNA vaccine development.

Conclusion:
Chemical science is at the forefront of addressing critical global issues. From advanced materials and green processes to life-saving pharmaceuticals, its contributions are transforming societies. This Conference provides a platform to share breakthroughs and encourage interdisciplinary collaboration for a sustainable, healthier future focusing on following topics to achieve our goal of Vikshit Bharat.

Objectives

1. To showcase recent innovations in nanotechnology, polymers, green chemistry, and related fields.
2. To encourage interdisciplinary interaction among chemistry professionals across academia, research institutions, and industry.
3. To promote awareness of sustainable practices in chemical manufacturing and applications.
4. To provide a platform for young researchers and students to present their work and gain feedback from experts.
5. To explore collaborative research and industrial opportunities based on the latest chemical technologies.

Sub Themes of the Conference

The Conference will focus on the following thematic areas:

- Synthesis of Drug Molecules and natural products
- Green and Sustainable Chemistry
- Ionic Liquids and Applications
- Nanomaterials
- Supramolecular Chemistry
- Recent Trends in Catalysis
- Organometallics
- Environmental Studies
- Drug Development and Drug Interactions
- Biochemistry and Biosciences
- Biotechnology
- Applications of quantum mechanics to Biophysical problems
- Interdisciplinary Sciences

Sponsorship

- This National Conference is partly sponsored by Department of Science and Technology, Govt. of Odisha.

Target Audience

- Faculty and Researchers from Chemical Science
- MPhil/PhD Scholars and Postgraduate Students
- Writers and Independent Scholars
- Resource person and professionals in Industry

Expected Outcomes

- Enhanced interdisciplinary collaboration among researchers and institutions.
- Increased awareness of practical, sustainable applications of modern chemical science.
- Identification of new research areas and innovation opportunities.
- Publication of selected Conference papers in an ISBN volume or peer-reviewed journal
- Strengthened academia-industry linkages for translational research.

Call for Papers, Abstract Submission, and Poster Presentation

The Organising Committee cordially invites original research papers and posters from students, research scholars, academicians, and professionals working in colleges, universities, and research institutes for presentation at the National Conference on *"*Recent Developments in Material Science and its Societal Applications for achieving Vikshit Bharat*"*

Guidelines for Abstract Submission

- The abstract should be written in English and must not exceed 250–300 words.
- Font: Times New Roman, size 12 pt, with 1.5 line spacing.
- The title of the paper, followed by the name(s) of the author(s), designation, institutional affiliation, email ID, and address must be clearly mentioned at the top of the document.
- Abstracts must clearly state the purpose, methodology, and key findings of the research.
- Abstracts must be submitted via email only to the official Conference email ID. (chemistrydepartmentpmi@gmail.com)

Publication Opportunity: Selected research papers will be peer-reviewed and published in the Conference proceedings with an ISBN number by a reputed publishing house.

Awards

- Best Research Paper Award - Cash prize and Certificate

For further queries, participants are requested to contact the Organising Committee. Detailed contact information is available in the brochure.

Submission Deadline for Abstracts and Outlines:	• 10th Novemeber 2025
Notification of Acceptance:	• 12th Novemeber 2025
Full Paper Submission:	• 15th Novemeber 2025

Registration Fees:

- Faculty: ₹500/-
- Research Scholars: ₹400/-
- Students: ₹300

Payments to be made to the account no: 11304177869; IFSC Code: SBIN0002100; Branch: Pattamundai. Registration fees to be paid only after acceptance of the abstracts. Payment receipts to be shared to the email id of the Convener. Fees include Conference kit, lunch, and participation certificate. Fees once paid, is non-refundable.

QR Code for Registration

QR Code for Fee Payment

Registration Link : https://forms.gle/vot6oLb99DTa9gW67

No TA and Accommodation will be provided to participants. Only local hospitality will be provided.

Organising Committee and Contact:

- Umakanta Patra, Patron and Principal of the College.
- Dr. Sunil Kumar Pradhan, Organising Secretary, Reader in Chemistrty, Pattamundai College.
  Email ID- sunilpradhan1968@gmail.com/ chemistrydepartmentpmi@gmail.comContact No: 9937193076
- Dr. S.P.Das , Visiting Professor in Chemistry,Ravenshaw University,Cuttack, President, Odisha Chemical Society
- Dr Pramod Kuimar Das, Member, Odisha Chemical Society
- Mr Ranjan Kumar Gahan, Lecturer Chemistry, Pattamundai College.
- Mr. Jyotiranjan Rout, Lecturer in Chemistry, Pattamundai Collegee.

Technical Co-ordinator:

- Dr. Manas Kumar Nayak, Asst. Professor, Department Of English. Contact: 8249191219/ 8763776106
- Mr. Subhasis Mishra, Asst. Professor, Department of Economics
- Mr Jitendra Malik,. Asst. Professor, Department of Commerce
- Mr. Amit Kumar Sahoo, Asst. Professor, Department of Physics
- Miss. Debasmita Tripathy, Asst. Professor, Department of English. Contact: 8328823009

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Keynote Speakers / Invited Guests

- Dr. Umasankar Ojha. Professor in Chemistry, IIT Bhubaneswara
- Dr. Padmaja Prasad Mishra, Professor in Chemistry, Chemical Science Division, Saha Institute of Nuclear Physics, Kolkata.
- Dr Pabitra Kumar Nayak, Reader (F), Tata Institute of Fundamental Research, Hyderabad.
- Dr Chandrasekhar Purohit, Professor in Chemistry ,NISER, Bhubaneswar
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