



35th Annual Conference of OCS and National Seminar on FCS

PROCEEDINGS
35th Annual Conference of
Orissa Chemical Society
and
National Seminar on
Frontiers in Chemical Sciences
(FCS-2021)

December 18-19, 2021



Organized by
P. G. Department of Chemistry
Maharaja Sriram Chandra Bhanjdeo University
(Erstwhile North Orissa University)
Baripada, Odisha-757 003



PROCEEDINGS
35th Annual Conference of
Orissa Chemical Society
and
National Seminar on
Frontiers in Chemical Sciences
(FCS-2021)

December 18-19, 2021



Organized by
P. G. Department of Chemistry
Maharaja Sriram Chandra Bhanjdeo University
(Erstwhile North Orissa University)
Baripada, Odisha-757 003

Sponsors:

IDP (OHEPEE)

Dedicated to



Prof. (Dr.) Sukumar Aditya

Death: Dt. 28.12.2019

Prof. Sukumar Aditya was an adorable teacher and researcher. In his long career as a distinguished Professor of Chemistry, he was deeply associated with the Chemistry fraternity of Odisha. He was the first Ph.D. in science stream in Chemistry from Utkal University along with Late Prof. Mahendra Kumar Rout. He was the last living Founder Member of Bigyan Prachar Samiti of Odisha. Professor Aditya was the President of the Royal Society of Chemistry, Eastern India Section.

Dedicated to



Prof. (Dr.) Sarat Chandra Padhi

Birth: Dt. 15.01.1932

Death: Dt. 26.12.2019

Prof. (Dr.) Sarat Chandra Padhi was born on 15th January 1932 at Paralakhemundi, Ganjam, Odisha. He passed Matriculation Examination in the year 1946 from Brindaban Bidyapitha. He completed B.Sc. (Chemistry) Pass Course in the year 1950 with Distinction from Ravenshaw College, Cuttack. He passed M.Sc. (Chemistry) Examination in the year 1952 from Banaras Hindu University in the First Division. He obtained his Ph.D. Degree in Chemistry in 1979 from Berhampur University, working under the supervision of Prof. P. S. R. Murthy. "Kinetics of Chemical Reaction" was his field of research. He has published five research papers in various technical journals. He was a Lecturer in Chemistry in Khallikote College, Berhampur, from August 1952 to 1957. Subsequently, he joined G. M. College, Sambalpur, on 3rd January 1958 under Odisha Education Service. He also worked in Angul College, Angul (1958 to 1959), Ravenshaw College, Cuttack (1959-1962), Angul College, Angul (1962-1969), and B.J.B. College, Bhubaneswar (1969-1971). In July 1983, he was promoted to the rank of Professor of Chemistry and was posted in Khallikote College, Berhampur. He continued there till 31st January 1990, the date on which he was superannuated from Odisha Education Service. He was the President of OCS in 1991. In his tenure as the President, the Annual Conference of OCS was held at Sambalpur University, Jyoti Vihar, Burla, on November 30 and December 01, 1991. Prof. Padhi passed away on 26th December 2019 at the age of 88 years in Bhubaneswar.

Dedicated to



Prof. (Dr.) Chitta Ranjan Das

Birth: Dt. 02.10.1938

Death: Dt. 17.01.2019

Prof. (Dr.) Chitta Ranjan Das was born on October 20, 1938 at Cuttack. He completed his M.Sc. in Chemistry from Ravenshaw College, Cuttack, in 1960. As a Lecturer in Chemistry in B. J. B. College, Bhubaneswar, he carried out research under the supervision of Prof. N. Bose, Professor of Chemistry, Regional College of Education, Bhubaneswar and earned his Ph. D. Degree of Utkal University. He was a Visiting Scientist at Norwegian Technical University, Norway, with a Royal Norwegian Government Fellowship; at Louisiana State University, USA, with a Sea Grant Fellowship; and at Leeds University, England, with a Royal Society of England Fellowship. He collaborated with Prof. (Dr.) P. K. Jena, Director, Regional Research Laboratory, Bhubaneswar, on study of corrosion. His expertise in extensive corrosion studies was well recognised in the country and abroad. He became Chief Executive and Director in the Department of Environment, Govt. of Odisha, and was trained in Environmental Management at the Asian Institute of Technology, Bangkok, Thailand. He was responsible for the implementation of Integrated Sustainable Environment Management Plans for the famous wetlands like Chilika lake and Ansupa lake. He was Advisor to Govt. of Odisha (Planning & Coordination Department), Govt. of Madhya Pradesh on Wetland Management, advisor to UNESCO at Nairobi, Kenya, advisor to many public and private sector undertakings and also Chairman of Environment Impact Assessment Authority of Odisha. He also carried out extensive research work on Environmental Conservation of Heritage like Sun Temple, Konark, and Lord Jagannath Temple at Puri. He has published 30 research papers in different Indian & Foreign Journals and supervised Fourteen Ph.D students. His name has been enlisted as an Eminent Scientist of 20th Century in Marquis. Prof. C. R. Das was the President of OCS in 2006. During his term as the President, the Annual Conference of OCS was held on Dec 16-17, 2006 at NIST, Berhampur. He breathed his last in his residence at Bhubaneswar on January 17, 2019.

Dedicated to



Prof. (Dr.) Bhaskar Dash

Birth: Dt. 17.12.1930

Death: Dt. 27.10.2021

Prof. (Dr.) Bhaskar Dash was born on 17th February 1930 at village Simudi in the undivided Puri District of Odisha. He passed out High School Certificate Examination in the 1st Division from Nimapara High School in the year 1948. He completed his I.Sc., B.Sc.(Hons.) in Chemistry and M.Sc. in Chemistry from Ravenshaw College, Cuttack in the years 1950, 1952, and 1954, respectively. He obtained his Ph.D. Degree in Organic Chemistry from Utkal University in the year 1961 working under the supervision of Prof. Mahendra Kumar Rout. Prof. D. H. R. Barton, Nobel Laureate in Chemistry, was one of the Examiners of his Ph.D. thesis who recommended the thesis very highly for the award of the Ph.D. Degree by Utkal University. He did his Post-Doctoral Research at Brandeis University and MIT, USA, for a period of 1 and 2 years, respectively, and worked on Nucleic Acids and Synthesis of Vitamin D₃. He has 33 years of research experience, and eight students got their Ph.D. Degrees working under his able supervision. Organic Chemistry and Medicinal Chemistry were his fields of specialization. He has published 60 research papers in various National and International journals. He has ten years of teaching experience at Ravenshaw College, Cuttack (including four months at S.C.S. College, Puri) and 23 years of teaching experience in the Department of Chemistry, Utkal University, Bhubaneswar as Lecturer, Reader, and as Professor of Chemistry. He was a Fellow and Member of professional bodies both in the country and abroad viz. UGC; MIT's Sigma Xi Society, USA; New York Academy of Sciences; Institution of Chemists (India); Odisha Bigyan Academy, and Bigyan Prachar Samiti, etc. He was President of Orissa Chemical Society in 1994. The Annual Conference of the OCS was held on December 10-11, 1994, at Sambalpur University, Jyoti Vihar, Burla.

Dedicated to



Prof. (Dr.) Pradipta Kumar Jesthi

Birth: Dt. 11.04.1939

Death: Dt. 30.10.2021

Prof. (Dr.) Pradipta Kumar Jesthi was born at Mansingpatna, Cuttack, on 11th April 1939. He passed M. Sc. (Chemistry) from Ravenshaw College, Cuttack, in 1959 in First Class. He obtained his Ph.D. Degree in Chemistry from Utkal University in the year 1968 under the supervision of Prof. (Dr.) M. K. Rout on Heterocyclic Compounds. He has to his credit 38 years of teaching experience including nine years of teaching and research experience in the Post-Graduate Department of Chemistry, Utkal University. He is a distinguished scientific personality in the fields of academics and administration. He was Head of the Department of Chemistry, Govt. College, Sundargarh from 1976 to 1980; Rajendra College, Bolangir from 1984 to 1986, and Dhenkanal College, Dhenkanal in 1988. He was Director (Students Welfare), Utkal University from 1985 to 1988; Principal, S.V.M. College, Jagatsinghpur from 1988 to 1991; Principal, Govt. College, Angul from 1991 to 1993; Principal, Panchayat College, Bargarh from 1993 to 1994; Additional Director (Higher Education) from 1994 to 1996 & Director, Higher Education, Odisha from 1996 to 1997. He is a Life Fellow of Indian Chemical Society, Kolkata (1976); Life Member of Orissa Chemical Society, Member of Indian Science Congress Association (ISCA), Kolkata; Member of New York Academy of Sciences, USA (1995); Dean, Faculty of Science, Utkal University (1996-1997), and President, Orissa Chemical Society (1998). He was a Research Fellow of CSIR (1963 to 1965) and UGC (1965 to 1966). He has guided Research Projects independently for M.Sc. and Ph.D. Degrees. He was a Post Doctoral Research Associate at Washington State University, Pullman, Washington, USA from 1972 to 1974 and from 1981 to 1984; the University of Utah, Salt Lake City, USA in 1993. His research areas of interest were Synthetic Organic Chemistry, Photographic Sensitizing Dyes, Heterocyclic Compounds, Nucleosides & Nucleotides, Organo-Metallic Compounds, and Labeled Compounds. He has published 37 research papers in various reputed National & International journals. He was the President of OCS for the year 1998. During his tenure as the President, the Annual Conference the OCS was held on December 19-20, 1998 at National Institute of Science and Technology (NIST), Berhampur.

Prof. Ganeshi Lal

Governor, Odisha

ପ୍ରଫେସର ଗଣେଶୀ ଲାଲ

ରାଜ୍ୟପାଳ, ଓଡ଼ିଶା



RAJBHAVAN
BHUBANESWAR - 751 008

ରାଜଭବନ
ଭୁବନେଶ୍ୱର-୭୫୧ ୦୦୮

November 20, 2021

MESSAGE

I am glad to know that Post Graduate Department of Chemistry, Maharaja Sriram Chandra Bhanja Deo University, Baripada in collaboration with Orissa Chemical Society is organising the 35th Annual Conference of Orissa Chemical Society along with a National Seminar on "Frontiers in Chemical Sciences" on December 18-19, 2021.

Shaping the future in order to realise economic and social goals is one of the fundamental challenges of human society. Science and Technology has proved as key in meeting this challenge. Chemical Sciences has its spectacular advancements and applications in many sectors with breathtaking accomplishments and it has also met new challenges as the focus is on a sustainable society. Orissa Chemical Society since its inception has been giving equal emphasis on quality teaching and research on frontline areas of Chemical Science. I am sure the national seminar and the annual conference would be highly productive and scientifically enlightening.

I wish the occasion and publication all success.

A handwritten signature in black ink, appearing to read 'Ganeshi Lal'.

(Ganeshi Lal)

धर्मेन्द्र प्रधान
धର୍मेन्द्र प्रधाण
Dharmendra Pradhan



मंत्री
शिक्षा; कौशल विकास
और उद्यमशीलता
भारत सरकार
Minister
Education; Skill Development
& Entrepreneurship
Government of India

MESSAGE

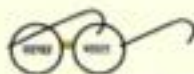
I am happy to know that the Post Graduate Department of Chemistry, Maharaja Sriram Chandra Bhanja Deo University, Baripada, Mayurbhanj, Odisha in collaboration with the Orissa Chemical Society is organising the "35th Annual Conference of Orissa Chemical Society" along with a National Seminar on "Frontiers in Chemical Sciences" on 18th & 19th December, 2021.

This is indeed an excellent effort by the Department and the Orissa Chemical Society which will provide an ideal platform for the scientists, academicians, industry people, researchers and students to interact and exchange ideas as well as discuss the recent developments of Science in sustainable utilisation / management of Chemical Sciences for wellbeing of mankind without jeopardizing our environment. I believe the deliberations will be of much benefit to all the participants in general and research community in particular in enriching their knowledge.

I wish the conference as well as the publications all success.

(Dharmendra Pradhan)

सबको शिक्षा, अच्छी शिक्षा



कौशल भारत, कुशल भारत



ODISHA STATE HIGHER EDUCATION COUNCIL (OSHEC)
Pustak Bhawan (2nd floor), A-11, Suka Vihar, Bhubaneswar-751022
Message



Chemical Sciences are perhaps as old as human civilization. The journey of human civilization that started with homo sapiens gathering food to reach the twenty first century of the Gregorian era has been a story of discovering, understanding and harnessing fires of various kinds including fire of our souls . The first paradigm shift in human life occurred with the discovery of atomic fire; the combustion and oxidation reaction while the second major transformation occurred with the discovery of nuclear fire and human capability in harnessing it. Photosynthesis is perhaps one more example of phenomena in chemical sciences whose importance stems from being the source of all of humankind's food and oxygen, whereas fossilized photosynthetic fuels have not only been providing more than 75% of the world's energy but also the biochemical process has been sustaining the biosphere as the basis for the food chain. Modern Chemical Science has gone through a number of changes since the days of Alchemists through its interface with significant developments in physics, electronics, computers and biology. Quantum mechanics, understanding of structure of atoms and molecules, availability of sophisticated equipment like spectrometers operating across electromagnetic spectra, electron microscopes, NMR, Chromatographs, mass spectrometers, gravimeters, diffractometers, high performance computers etc. have contributed greatly to the development of Chemical sciences of the twenty first century. Additionally, the availability of charged particle beams, plasmas and lasers as modern processing tools provided abundance of active species and free radical for carrying out chemical processing under non equilibrium conditions. Therefore, chemical sciences in the twenty first century is now dominated by novel areas like material chemistry, ultrafast chemistry, radiation and photo chemistry, plasma chemistry and nuclear chemistry. The rapid advances in life sciences have also opened up truly exciting research in the fields of biochemistry and chemical biology that unravel novel chemical processes at cellular level.

In this context, it gives me great pleasure to know that the Odisha Chemical Society is organising its 35th annual conference on Frontiers in Chemical Science at the PG Department of Chemistry, Maharaja Sriram Chandra Bhanja Deo University Baripada. It will give great opportunity to young students, many of them being first generation learners, to listen to exponents in this great area of Science and interact with them. Hopefully, Odisha Chemical Society will use such occasions to inspire young researchers to work on exciting emerging areas at the interface of chemistry, physics , geology and life sciences. My best wishes for the success of the Conference

Asoka Kumar Das

Vice Chairman

SHRI SUDAM MARNDI

MINISTER

Revenue & Disaster Management
Odisha



Phone { Office :
Office :



D.O. No.

BHUBANESWAR

Date

MESSAGE

It gives me immense pleasure to know that the Post Graduate Department of Chemistry, Maharaja Sriram Chandra Bhanja Deo University, Baripada, Mayurbhanj, in collaboration with the Odisha Chemical Society is organising the "35th Annual Conference of Odisha Chemical Society" along with a National Seminar on "Frontiers in Chemical Sciences" and bringing out a Souvenir to mark the occasion, on 18th and 19th December, 2021. I convey my hearty good wishes to the organizers for their efforts in arranging such Seminar which brings together leading academicians, scientists, researchers and scholars to exchange and share their experiences and research findings on the frontier areas of chemistry to extend further the scope of chemistry.

This pioneer educational institute of North Odisha is really praiseworthy for its noble endeavour in holding such Conference as well as Seminar which provides a platform and discuss recent innovations, trends and practical challenges encountered and solutions adopted in the field of chemical sciences. I hope the conference will benefit the students in a big way.

I wish the organisation of this "35th Annual Conference of Odisha Chemical Society" along with the National Seminar and publication of the Souvenir a grand success.


(Sudam Marndi)



MAHARAJA SRIRAM CHANDRA BHANJA DEO UNIVERSITY
(Erstwhile North Orissa University)

SRIRAM CHANDRA VIHAR, TAKATPUR, BARIPADA-757003, ODISHA
Mobile: 8895615636, 9437570288 e-mail: vconou@rediffmail.com, kishorkbasa58@gmail.com

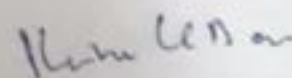
Prof. Kishor Kumar Basa, Ph.D.(London)
Vice-Chancellor

MESSAGE

I am extremely happy to know that the Post Graduate Department of Chemistry, Maharaja Sriram Chandra Bhanja Deo University, Baripada, Mayurbhanj in collaboration with the Orissa Chemical Society is organizing the 35th Annual Conference of Orissa Chemical Society along with a National Seminar on "Frontiers in Chemical Sciences" on December 18th & 19th, 2021.

I am glad to know that a Souvenir is being published to mark the occasion. This is indeed an excellent effort by the organizers which will provide a platform for students, researchers and academicians to interact and exchange their knowledge and ideas through this scientific deliberation.

I convey my best wishes and greetings to all the members of the Orissa Chemical Society and participants and wish the conference all success.


(Kishor K Basa)

Dr. Shashadhar Samal
PRESIDENT, OCS



Message

In the last two years, the coronavirus pandemic has devastated everyday human life on earth. For the first time in a century, we came to realize that a small virus could hijack our precious life. It was difficult to believe that such a situation could come in the 21st century when science has advanced so much. A feeling of anyone being the next victim combined with the trauma caused by losing loved ones created a sense of helplessness never felt before.

Governments the world over, irrespective of rich or poor, acted fast with one goal of saving the human race from extinction. Thanks to science, more specifically to the rich diversity of chemical sciences, that the scientific pool the world over sprang into action to rein in the coronavirus in the shortest possible time. With most of the population having been vaccinated, the disease is under control. As it stands now, soon prescription drugs will be available off the counter, and it is a matter of time that the virus becomes ineffective.

We, the chemists, played a remarkable role in this situation. We now learn that there could be more challenging times as new aggressive genomic species could show up and threaten our existence. We realize that we have a significant role to play at this crucial juncture. It is essential to understand the complexity of the situation and challenges to be met, for which we need to pursue science more diligently than ever before.

Good science requires collaborating, sharing our expertise, and frequently exchanging ideas. The Orissa Chemical Society is an august forum for scientific deliberations. It is time that this platform is made more vibrant. In recent years, Odisha is witnessing unprecedented growth in higher education and research. New national-level institutes and universities have come up, and more such institutions will be established in the future. Odisha has a vast pool of researchers in diverse disciplines of chemical sciences. I believe that research conducted in the state will impact the global scenario in a few years.

Conducting a physical meeting in these difficult times is quite challenging. Still, the authorities of the Maharaja Sriram Chandra Bhanjadeo University and the organizers of the 35th OCS Annual conference have done a splendid job. They deserve our praise and respect for their dedication and hard work. Apart from scientific deliberations, all of us are looking forward to physically seeing each other after a long gap. I am confident that the meeting will be a grand success.

Best wishes,

A handwritten signature in black ink, appearing to read 'Shamal', written in a cursive style.

(Shashadhar Samal)
President, OCS

Dr. Priyaranjan Mohapatra
Associate Professor, VSSUT, Burla
Secretary-cum-Treasurer, OCS



***ANNUAL REPORT OF THE SECRETARY
ORISSA CHEMICAL SOCIETY FOR THE YEARS 2020 AND 2021***

Revered Chief Guest of this inaugural function, Prof. Sanjay Kumar Nayak, honorable Vice-Chancellor of Ravenshaw University, Chief Patron of the Conference Prof. K. K. Basa, honorable Vice-Chancellor of Maharaja Sriram Chandra Bhanja Deo University, Guest of Honor Prof. Swaminathan Sivaram, Former Director, National Chemical Laboratory, Pune, Honorary Professor Emeritus and INSA Emeritus Scientist, IISER, Pune and Honorary Professor, IISER, Kolkata, my revered teacher Prof. Shashadhar Samal, President, Orissa Chemical Society (OCS), respected Dr. R. K. Singh, Head, Department of Chemistry and Organizing Secretary of this conference, respected Prof. Pramoda K. Satapathy, Convener of the Seminar ‘Frontiers of Chemical Sciences (FCS-2021)’, Joint Secretaries and Members of the Local Organizing Committee, Vice-Presidents, Joint-Secretaries, and Members of the OCS Executive Committee, esteemed former Presidents and Secretaries of the OCS, respected Members of the Awards Committee, honorable Members of the Olympiad Committee, revered Members of Professor Mahendra Kumar Rout Birth Centenary Celebration Committee and members of the MKRCC Working Committee, distinguished invited speakers, life and patron members of the OCS, delegates, invitees, members of the press, and dear students; today, after a gap of nearly two years, the Orissa Chemical Society is celebrating the 35th Annual Conference at Maharaj Sriram Chandra Bhanja Deo University, Baripada. On behalf of the Orissa Chemical Society, I extend you all a warm welcome to this Annual Conference.

The Orissa Chemical Society is the apex society of the chemists of the state. Conceptualized in the School of Chemistry, Sambalpur University, in 1985, the organization was formed with late Professor Mahendra Kumar Rout as the Founder President. Since then, the OCS has consistently grown in strength. The Society has now nearly 1500 Life and Patron Members. The Society is founded on the principle of equal emphasis on teaching and research in frontline areas of chemical sciences. It organizes regional and annual conferences at regular intervals each year. I deem it a rare privilege to put up before this august House the Annual Report of the Society for the years 2020 and 2021.

The last OCS Annual Conference was held on 24-25th December 2019 at Veer Surendra Sai University of Technology (VSSUT), Burla. In the General Body Meeting held on 24th December 2019 at VSSUT, the Executive Committee for 2020 was formed with the following office bearers.

President	Prof. Shashadhar Samal
Vice-Presidents	1. Dr. Nrusingha Charan Pati 2. Prof. Nigamananda Das 3. Prof. Sukalyan Dash
Secretary-cum-Treasurer	Dr. Priyaranjan Mohapatra
Joint Secretaries	1. Dr. Bibhuti Bhusan Parida 2. Dr. Pramoda Kumar Das
Members	1. Prof. Smruti Prava Das 2. Prof. Ashok Kumar Mishra 3. Dr.(Mrs). Jayanti Panda 4. Prof. Bhisma Kumar Patel 5. Mr. Ashok Kumar Nayak 6. Dr. Braja Narayan Patra 7. Dr. Ashok Kumar Roul 8. Dr. Smruti Pattnaik 9. Dr. Ramchandra Rout (Nominated by the President, OCS)

The first meeting of the Executive Committee was held on 1st February 2020 at the College of Engineering and Technology, Bhubaneswar. Based on the resolutions of the Committee, several new initiatives were taken up by the OCS. To begin with, the OCS website was revamped with dynamic and automated features. Now, applications for OCS membership can be made online. Members can generate the Membership Certificate and OCS ID Card, contribute articles to the OCS e-Magazine, and interactively participate in the teaching-learning process through the Career Assistance Cell.

As resolved in the EC meeting, the OCS conducted the OCS One-Day Extended Lecture Series for the first time. The first such meeting was held in a virtual platform on 28-29th November 2020 in collaboration with Dhenkanal Autonomous College, Dhenkanal. Several distinguished scientists, namely Prof. P. K. Iyer (IIT, Guwahati), Prof. S. K. Sahoo (SVNIT, Surat), Dr. R. Sharma (University of Kentucky, USA), Dr. S. K. Rout (Ludwig-Maximilians-Universität München, Germany), Dr. M. Sahoo (Indira Gandhi Centre for Atomic Research, Kalpakam, Tamilnadu), Prof. Aditya N. Panda (IIT, Guwahati), Dr. R. K. Nanda (Pontificia Universidad Católica de Chile), Dr. B. P. Biswal (Ashoka University, Haryana), Dr. L. N Nanda (The Hebrew University of Jerusalem, Israel), Dr. A. Karmakar (Centro de Química Estructural, Instituto Superior Técnico), and Dr. F. A. S. Chipem (Manipur University) delivered lectures. The online meeting was hugely successful. Over 600 participants logged on to the two-day-long webinar.

The second OCS One-Day Extended Lecture Series was held on 22-24th January 2021 online in collaboration with Veer Surendra Sai University of Technology, Burla, Sambalpur, on the theme 'Recent Advancement in Material Sciences'. The speakers were Prof. Jyotirmayee Dash, Santi Swarup Bhatnagar Award Winner for 2020 (IACS, Kolkata), Dr. Rabindra Kumar Behera (NIT, Rourkela), Prof. Paritosh Mohanty (IIT, Roorkee), Prof. S. K. Swain (VSSUT, Burla), Dr. Bamaprasad Bag (CSIR-IMMT, Bhubaneswar), Dr. Prasanna Kumar Sahoo (IIT, Kharagpur), Dr. Bikash Kumar Jena (CSIR-IMMT, Bhubaneswar), Dr. Debabrata Pradhan (IIT, Kharagpur), Dr. Rati Ranjan Nayak (CSIR-IICT, Hyderabad), Dr. K. C. Barik (BARC, Mumbai), Prof. Sukalyan Dash (VSSUT, Burla), and Dr. Garudadhwa Hota (NIT, Rourkela). Like the first meeting, this webinar was also a great success.

For the first time, researchers from OCS and industries met on a common forum, the OCS-Industry Interface Meet. The webinar was held in collaboration with the Mining Minerals Metals and Materials Society of India (4MSI) on 26-27th December 2020. The speakers were Dr. Bankim Chandra Tripathy, NRDC Award Winner (IMMT, Bhubaneswar), Sri Pratap Chandra Sahu (Hindalco, Renukut, UP), Dr. Ratikanta Mishra (BARC, Mumbai), Dr. Rasmi Ranjan Mohanty (Advent ChemBio Pvt. Ltd.), Dr. Subhash Chandra Mallick (L. N. Indtech Services Pvt. Ltd.), Sri Chinmaya Chandra Nayak (Shalimar Paints), Dr. Baidyanath Mishra (Wellness Research Pvt. Ltd., Bangalore), Dr. Narendra Kumar Tripathy (Emcure Pharmaceuticals Ltd., Pune), Dr. Subhra Mohanty (Reliance R&D Center), Dr. Monalisa Swain (Frederick National Laboratory for Cancer Research, NIH, USA), Mr. Neelkamal Mohapatra (Yansefu Inks and Coatings Pvt. Ltd.), Prof. Smruti Ranjan Parida (IIT, Bombay), and Dr. Pranab Kumar Patra (PI Industries Ltd. Udaipur, Rajasthan). The general opinion was that the OCS should organize such meetings more often. I am particularly thankful to Dr. Rama Chandra Rout (HINDALCO, Bhubaneswar) and Dr. Tapan Kumar Rout (Tata Steel) for their generous help and support in organizing this historic meeting.

I am immensely grateful to the Local Organizing Committee, and specifically to Prof. Pramoda K. Satpathy, Convener of the Conference, for printing the abstracts of the above webinars free of charge. Readers can access the Full Proceedings of the webinars on the OCS website archives.

To celebrate the Birth Centenary of OCS Founder President, Prof. Mahendra Kumar Rout, a Committee was constituted by the EC with the following members:

1. Prof. P. K. Mishra – CHAIRMAN
2. Prof. P. B. Tripathy
3. Prof. G. B. Behera
4. Prof. A. C. Dash
5. Prof. (Mrs.) Subasini Lenka
6. Prof. R. K. Satapathy
7. Dr. C. R. Mishra
8. Prof. S. P. Rout
9. Dr. Deva Narayan Pattnayak
10. Prof. S. Jena
11. Prof. (Mrs.) Smruti Prava Das
12. HOD, Chemistry, Ravenshaw University – Ex-officio Member
13. President and Secretary, OCS – Ex-officio Members

A Working Committee with the following members was also formed.

1. Prof. P. K. Mishra - CHAIRMAN
2. Prof. G. B. Behera
3. Prof. Sanjay Ku. Nayak
4. Prof. S. P. Rout
5. Dr. C. R. Mishra
6. Prof. Satyaban Jena
7. Prof. Asutosh Samantray
8. Dr. Sarat Ch. Das
9. Dr. Shashadhar Samal - Secretary
10. Dr. Pramod Kumar Prusty
11. Dr. Priyaranjan Mohapatra
12. Dr. Debasis Mohanty

The Members of the Committees were to meet often in the Department of Chemistry, Ravenshaw University. Due to COVID19 restrictions, an in-person meeting of the Committee could not be possible. A virtual meeting was held on 8th November 2020. It was resolved that Prof. M. K. Rout Birth Centenary Celebration (MKRCC) will be held in January 2023 with an inaugural meeting in Ravenshaw University, followed by meetings in Khallikote University, Gangadhar Meher University, Bhadrak Autonomous College, and Utkal University. Students and admirers of Late Prof. Rout are spread all over the world. To facilitate online participation in the birth centenary celebration, a dedicated feature for MKRCC is now provided on the OCS website.

The OCS gives several awards and prizes. Applications/nominations are invited, evaluated by the Awards Committee, and the winners are selected. The EC formed the Awards Committee for 2020 with the following members:

1. Prof. A. C. Dash
2. Prof. S. Lenka
3. Prof. Prakash Mohanty
4. Prof. S. Jena
5. Prof. S. C. Das
6. Prof. Smruti Prava Das (Member selected by EC for Awards Committee 2021 in place of Prof. A. C. Dash)

As decided by the Awards Committee, the winners of various awards for 2020 and 2021 are as follows. They will receive the awards/prizes in this Annual Conference.

Sl. No.	Name of the Award/Prize	Award Winner 2020	Award Winner 2021
1.	Prof. R.C. Tripathy Memorial Award (Outside the state)	Dr. Gynaranjan Prusty Department of Chemistry, VSSUT, Burla	No awards in 2021 as the required number of applications were not received.
2.	Prof. R.C. Tripathy Memorial Award (Inside the state)	Dr. Aneeya Kumar Samantara NISER, Bhubaneswar	Dr. Debayan Sarkar Department of Chemistry NIT, Rourkela
3.	Prof. Dayanidhi Patnaik Memorial Award	Sri Ranjit Bariki Department of Chemistry NIT, Rourkela	Dr. Rupam Dinda Department of Chemistry NIT, Rourkela
4.	Prof. G. B. Behera Best Ph.D. Thesis Award	Dr. L. Satish Kumar Achary Department of Chemistry NIT, Rourkela Present Position: Asst Prof, CV Raman Global University	Dr. Kalyani Prusty Department of Chemistry VSSUT, Burla
5.	Kulamani Das Memorial Award in Environmental Science	No awards in 2020 as the required number of applications were not received.	Dr. Bapun Barik At - Jagannathpur, Keonjhar Town, Keonjhar, Odisha.
6.	Prof. Donald S. Matteson and Prof. P. K. Jesthi Award	No awards in 2020 as the required number of applications were not received.	No awards in 2021 as the required number of applications were not received.
7.	Prof. Sripati Pani Memorial Award	Dr. Santosh Kumar Behera At: Luni, PO: Odagaon Dist: Nayagarh 752090	Rajat Kumar Sahoo AT- Baharipur, PO - Girigaon, PS - Nandipada, Dist - Keonjhar
8.	Prof. K.K. Patnaik Memorial Award	Arpita Tripathy C/O Sri Artatrana Tripathy	Anita Sahoo Sambalpur University

		College Road, Badamba Cuttack 754031	Qr. No. F28/7, Board Colony, Burla, Sambalpur.
9.	Smt. Parvati Mishra Memorial Award	Swapnita Patra C/O Prof. Sarat Kumar Swain Professor and Dean, Academic Affairs, VSSUT, Burla	Anita Sahoo Sambalpur University Qr. No. F28/7, Board Colony, Burla, Sambalpur.
10.	B. K. Mohanty Memorial Book Grant	Sandeep Kumar Pradhan Department of Chemistry Utkal University	Biswaranjan Prusty, Department of Chemistry, Utkal University, Vani Vihar, Bhubaneswar
11.	Smt. Subhadra Devi Memorial Award	Mr. Tonish Kumar Sahu Department of Chemistry Sambalpur University	Chinmayee Paikaray At - Durgaprasad, PO - Paikabarabati Via - Narasinghpur, Dist. - Cuttack
12.	Dr. Pranabandhu Tripathy Award	Aradhana Sahoo Department of Chemistry Berhampur University	Chinmayee Paikaray At - Durgaprasad, PO - Paikabarabati Via - Narasinghpur, Dist. - Cuttack
13.	Prof. R. K. Nanda Award	No award for 2020 as the Annual Conference of OCS was not held.	To be decided in the Annual Conference of OCS, 2021
14.	Dr. Subasini Lenka Award	No award for 2020 as the Annual Conference of OCS was not held.	To be decided in the Annual conference of OCS, 2021
15.	Sarat Chandra Science Promotion Award	No award for 2020 as the Regional Conference of OCS was not held.	Sri Maheswar Nayak, TGT, Science (CBZ), Govt. Nodal U. G. High School, Purushottampur, Ganjam

The year 2020 will be forever remembered for the pandemic caused to humanity by the coronavirus. The Orissa Chemical Society, too, had its share of owes. For the first time in recent years, the OCS had to cancel the 23rd Regional Conference, postpone the 34th Annual Conference, and cancel some routine activities for the years 2020 and 2021, such as Prof. M. K. Rout Memorial Essay Competition and Chemistry Olympiad. The proposed Refresher Program for the College Teachers could not be worked out. Since an in-person General Body Meeting could not be held, the Executive Committee 2020 continued through 2021.

The recent easing of the COVID19 situation allowed OCS to hold the 24th Regional Conference in Saraswati Degree Vidya Mandir, Neelakanthapur, Berhampur in physical mode on 28th November 2021 on the theme "Environment Management in 21st Century - Challenges and Opportunities". The speakers of the conference were Prof. S. Raghavan (IISER, Berhampur), Prof. Paritosh Mohanty (IIT, Roorkee), Prof. Debadutta Pradhan (IIT, Kharagpur), and Dr. Smita Mohanty (CIPET, Bhubaneswar). The inaugural and closing meetings were addressed by dignitaries like Prof. Gobinda J. Chakrapani (Vice-Chancellor, Berhampur University), Prof. Prafulla Kumar Mohanty (Vice-Chancellor, Khallikote University), Prof. Ashok Kumar Mishra (IIT, Madras), and Dr. Chitta Ranjan Mishra (Eminent Scientist, NALCO and Columnist). To promote and popularize science at the base level of education, the Orissa Chemical Society has instituted the 'Sarat Chandra Science Promotion Award' for school teachers serving the education district in Odisha. This year, Sri Maheswar Nayak, TGT, Science (CBZ), Govt. Nodal U. G. High School, Purushottampur, Ganjam was awarded the prize in the Inaugural Meeting. Several Environment Activists were honoured in the inaugural meeting. The LOC gave prizes for the best poster presentations. For a grand success of the Regional Conference, I convey my hearty thanks to honourable Vice-Chancellors of Berhampur and Khallikote University, other guests, the Local Organizing Committee, and specifically to the Principal of the College, Dr. Subrat Kumar Panigrahi, the Management of the College, the speakers of the meetings, members of the faculty and students.

Since the last OCS General Body Meeting, some of our revered teachers and OCS members have passed away.

Name	Date of Demise
Prof. Sarat Chandra Padhi	26 th December 2019
Prof. Sukumar Aditya	28 th December 2019
Sri Gopinath Gajapati Narayan Deo	10 th January 2020
Prof. Dhaneswar Rout	12 th October 2020
Prof. D. V. Raman Rao	29 th October 2020
Prof. Prakash Kumar Mohapatra	26 th December 2020
Prof. Padma Lochan Nayak	12 th January 2021
Prof. Rabindra Nath Nanda	15 th January 2021
Prof. Satyabrata Mishra	26 th February 2021
Prof. Bhaskar Dash	27 th October 2021
Prof. Pradipta Kumar Jesthi	30 th October 2021

Dr. Jagannath Prasad Nath	8 th November 2021
Dr. Pathani Sundar Mansingh	10 th November 2021
Mr. Narayan Prasad Jena	12 th November 2021
Dr. Neelakantha Dash	14 th November 2021

They will be remembered for their dedication to the cause of science as teachers and researchers par excellence. To honor the late lamented souls, the OCS has requested the presence of a member of the grieving family in the inaugural meeting of the 35th Annual Conference.

The 35th Annual Conference is dedicated to the memory of our revered teachers, Prof. Sukumar Aditya, Prof. Sarat Chandra Padhi, Prof. Chitta Ranjan Das, Prof. Pradipta Kumar Jesthi, and Prof. Bhaskar Dash. The Society will forever remember their contribution to the OCS and carry forward their ideals.

The significant events of the Annual Conference of the Society are the Memorial Lectures. The prestigious Prof. M. K. Rout Memorial Lecture, instituted in memory of Prof. Mahendra Kumar Rout, Founder President of OCS, Principal of Erstwhile Ravenshaw College, Vice-Chancellor of Utkal University, and Chairman of State Pollution Control Board, will be presented by Prof. Swaminathan Sivaram, our Guest of Honor. In memory of Prof. S. R. Mohanty, Professor and Head, Department of Chemistry, Utkal University, the OCS organizes memorial lectures every year. This year, there will be two Prof. S. R. Mohanty Memorial Lectures, one by Prof. Tomi Nath Das (OS, Retired), Radiation and Photochemistry Division, BARC, Mumbai, and Prof. Ashok Kumar Mishra, distinguished Professor of Chemistry, IIT, Madras. The lecture of Prof. Mishra will be presented online. In addition to the Memorial Lectures, two eminent scientists, Prof. Narayan Pradhan (IACS, Kolkata) and Prof. Himansu Sekhar Biswal (NISER, Bhubaneswar), have been invited to deliver lectures on their recent ground-breaking research.

Some of the OCS Awards require that the awardee deliver a lecture on the subject that led to the award. Accordingly, there will be several award lectures during these two days of the conference. Abstracts have been invited for oral and poster presentations. The OCS will give Prof. R. K. Nanda Award for best oral presentation and Dr. Subasini Lenka Award for best poster presentations in the valedictory function.

With humility and respect, I, on behalf of the OCS, convey my heartfelt thanks to the organizers of the OCS Annual Conference. Honourable Vice-Chancellor of Maharaja Sriram Chandra Bhanja Deo University, Prof. Basa, has been a constant source of inspiration and guidance. The OCS will remain indebted to him. I convey my thanks to the honourable Vice-Chancellor, Ravenshaw University, Prof. Sanjay Kumar Nayak, for his kind gesture in accepting our invitation to grace the inaugural meeting as the Chief Guest. My sincere thanks to the Guest of Honour Prof. Sivaram, who travelled all the way from Pune braving the coronavirus. Prof. Pramoda Kumar Satapathy, Convenor of the Conference, the Local Organizing Committee, and Members of the Chemistry Department have been relentlessly working for the last several months. The OCS holds their endeavour with great admiration and respect, and thanks them one and all for their noble service. The conference speakers will inculcate and enhance scientific temper in young minds, and they richly deserve our praise.

The OCS thanks the President of OCS, Prof. Samal, who has been a guiding force to alleviate the OCS to greater heights through several innovative programs. You will be happy to learn that due to his endeavour and the efforts of some distinguished senior OCS members, several new award/memorial lecture proposals, amounting to 19 lakh rupees endowment fund, have been pledged with the OCS. These proposals will be put up before the General Body today for final approval. I am thankful to the former Presidents and Secretaries of the OCS, the Members of the Executive Committee, the Awards Committee, the Prof. M. K. Rout Birth Centenary Celebration Committee, the Chemistry Olympiad Committee, members of other committees, for their selfless contributions to the OCS. The students are our force, and they are our future. Their contribution to the success of the Conferences deserves all the praise. Our sincere thanks are to the Members of the Press, both print and digital media, for covering this state-level annual meeting. Lastly, I thank all the Members of Supporting Staff, who have worked hard to make this meeting a grand success. I am sure the delegates will find this Annual Conference informative and rewarding. Thank you all.

Dr. Priyaranjan Mohapatra
Secretary-cum-Treasurer
Orissa Chemical Society
Associate Professor, VSSUT, Burla

LOCAL ORGANISING COMMITTEE

Patron- Prof. K.K. Basa (Honorable Vice-chancellor)

Convener- Prof. P.K. Satapathy, Professor of Chemistry

Organizing Secretary-Dr. R.K. Singh, Reader and Head

Joint Secretary- Dr. L. Behera, Asst. Professor
Dr. A.K. Jena, Assistant Professor

Treasurer- Dr. A.K. Dora, Assistant Professor

Members

- a) Dr. Sekhar Prasad Debata (Anandapur College, Anandapur)
- b) Dr. Subhendu Das (B.B. College Baiganbadia, Baiganbadia)
- c) Dr. Debesh Shankar Hota (Karanjia Autonomous College, Karanjia)
- d) Mr.Kamdev Pathi (Chitrada Mahavidyalaya,Chidrada)
- e) Dr. Subrata Kumar Patra (Baripada College, Baripada)
- f) Dr. Ramesh Ch. Behera (P.S College Badashi, Badashi)
- g) Mr.Satyabrat Sahu (Karanjia Autonomous College, Karanjia)
- h) Dr. Birendra Nath Mohanty (L.K. College Bangriposi, Bangariposi)
- i) Mr. Subhankar Sahu (M.P.C Junior College, Baripada)
- j) Dr. Anupama Das (D.D.Autonomous College,Keonjhar)
- k) Dr. Sudhir Kumar Kisku (M.P.C Autonomous College, Baripada)
- l) Dr. Gobinda Chandra Behera (M.P.C Autonomous College, Baripada)
- m) Dr. Sudarsan Singh (M.P.C Junior College, Baripada)
- n) Dr. Bighanshu Kumar Jena (Govt. Womens College, Baripada)
- o) Mr. Prakash Ranjan Mohanta (Rairangpur College,Rairangpur)
- p) Dr. Bhabani Shankar Mohanta (MSCB University,Baripada)
- q) Mr.ManoranjanTudu (Udala College, Udala)
- r) Mr. Debashish Das (M.P.C Junior College, Baripada)
- s) Dr. SwagatikaSahu (Betonoti College, Betonoti)
- t) Mr. Biplaba Ranjan Bindhani (Baripada College, Baripada)
- u) Dr. Gopal Chandra Pradhan(Kaptipada college Nuasahi)

OCS Executive Committee

President

Dr. Shashadhar Samal

Vice Presidents

Dr. Nrusingh Charan Pati

Prof. Nigamananda Das

Prof. Sukalyan Dash

Secretary-cum-Treasurer

Dr. Priyaranjan Mohapatra

Phone: +91-9437046418

Joint Secretaries

Dr. Pramoda Kumar Das

Dr. Bibhutii Bhusan Parida

Members

Prof. Smrutiprava Das

Prof. Ashok Kumar Mishra

Dr.(Mrs). Jayanti Panda

Prof. Bhisma Kumar Patel

Mr. Ashok Kumar Nayak

Dr. Braja Narayan Patra

Dr. Ashok Kumar Roul

Dr. Smruti Pattanaik

Dr. Ramchandra Rout

From the Editorial desk.....

Molecules and materials have now become so thoroughly ingrained into the society that it is extremely difficult to imagine life without materials and molecules. Chemistry and chemical processes have always played a major role in the development and use of different molecules and materials in various domains. Molecules played a pivotal role in drug development. Materials in general and nanomaterials in particular have continued to be an exciting area of research which offers opportunities for innovation and creativity. Nanoscale materials exhibit superior behaviors due to their size and are promising materials for the development of new technologies for use within the chemical, materials and biological domains. The growing interest in biomaterials encompasses an enormous range of topics which includes everything from their origin to development. One of the fields where materials found extensive applications is catalysis. There is an intimate relationship between nature and chemistry of materials with its activity. The use of a catalyst has several advantages over non-catalytic processes such as enhanced yield, less time and energy consuming, better product selectivity etc.

Overall, various aspects of recent development of chemistry, starting from nanomaterials to organic synthesis will be covered during the seminar. Subject expert from different domain will deliver their work in various technical session. The theme of the seminar is relevant to the expertise of the faculties and also the thrust area of research of the Department. We believe, the interaction, discussion and exchange of views/ideas with senior researchers will undoubtedly benefit the faculties and young researchers immensely.

The proceedings released during this seminar is possible due to timely response of invited speakers and authors in sending the abstracts of their valuable contributions; sponsors and donors for generous supports; active supports from members of local advisory and organizing committee; the University authority and above all the hard work of the members of souvenir committee. The timely support from publishing unit and encouragement from the well-wishers also help us to bring out this souvenir in time.

We hope our efforts to bring this proceeding will expose the readers a glimpse of current research works in chemistry and chemical sciences, both in pure and applied fields, carried out in and outside Orissa.

Editorial team put their optimum effort to present the content of the proceedings in systematic manner. Typological errors if any are unintentional and highly regretted.

Prof. P. K. Satapathy
Dr. R. K. Singh
Dr. L. Behera
Dr. A. K. Dora
Dr. A. K. Jena

Maharaja Sriram Chandra Bhanjadeo University – A Profile

The Maharaja Sriram Chandra Bhanjadeo University (MSCBU) (Erstwhile North Orissa University) has been established in the year 1998. The University is included in the UGC's list of Indian Universities under 2(f) and 12(B) with effect from 15.02.2000 and 21.06.2006, respectively. The University is also accredited by NAAC with B+ grade. At present there are 103 colleges of Mayurbhanj and Keonjhar Districts affiliated to this University. The University has two campuses (i) Main campus at Baripada, Mayurbhanj and (ii) Second Campus at Keonjhar. These two districts are thickly populated with an average of 63 per cent inhabitants belonging to the Scheduled Tribes. As development depends crucially upon human capital, MSCBU shall act as a beacon to this region so as to pull up the underprivileged youth to the national mainstream of Art, Culture, Science and Technology. At present the University offers various academic programmes under 22 Post Graduate Departments in the Main Campus and 5 Post Graduate Departments in the Second Campus.

The campus of the University is named as Sriram Chandra Vihar, after the name of Sriram Chandra Bhanja Deo who was the enlightened Raja of Mayurbhanj from 1892-1912. He is remembered even now for his able administration. Sriram Chandra Vihar is located at the outskirts of Baripada town in a sprawling area of about 100 acres of land besides National Highway (NH 5). It is 250 Km from Kolkata and 260 Km from the State capital Bhubaneswar. It is also well connected to all remote places of these two districts.

The Hon'ble Governor of Orissa, His Excellency Prof. Ganeshi Lal, is the Chancellor and Prof. Kishor Kumar Basa is the Vice-Chancellor of the University.

VISION OF THE UNIVERSITY

MSCB University, Baripada is dedicated to building and fostering general as well as professional education and to instill creative and critical sensibilities among the pupils of this terrain. Thus, the system of education largely contributes to their physical, mental and emotional wellbeing which enables them to face every social challenge with bravery and valour.

OBJECTIVES OF THE UNIVERSITY

The primary role of the University is to achieve following objectives.

- To impart quality education at U.G., P.G., M. Phil. and Ph. D. levels.
- To undertake scientific investigation and philosophical research activities in every sphere of its educational activities.
- To serve as a centre for promoting collaborative research works and intellectual exchange programmes among researchers and institutions in India and abroad.
- To create a universal outlook towards education based on ideals and values of everlasting ethos and inspirations.

MISSION OF THE UNIVERSITY

- Providing quality input to students through combination of lecture, print and electronic media.
- Providing a state-of-the art curricula and syllabi to all the institutions.

- Preparing course material packages for all the programmes.
- Promoting entrepreneurship amongst the students of the University and its affiliated Colleges.
- Preparing Career Development through Post-Graduate, M. Phil. and Ph. D. programmes.
- Developing centres of excellence in different disciplines.
- Ensuring effective, efficient and transparent system of examination, evaluation and publication of results.
- Encouraging training of all teachers.
- Ensuring clean and transparent system of administration.
- Making the University self-sufficient.
- Promoting industry-institute interface.

ABOUT THE DEPARTMENT

The Department of Chemistry, Maharaja Sriram Chandra Bhanja Deo University (Erstwhile North Orissa University) was established in 2004. The Department, with its qualified faculty engaged in teaching and research intends to assume a leadership role in teaching and curriculum development with a mission that popularizes Chemistry as a central science. We continue to update these concepts on a regular basis to meet the demands of the ever-extending, interdisciplinary and diverse nature of chemical sciences. The faculty has published more than 200 research papers in reputed peer reviewed Journals of decent impact factors such as Elsevier, Wiley Interscience and Royal Society of Chemistry. The faculty members are life members of many professional societies like Materials Research Society of India (MRSI), Indian Chemical Society, American Chemical Society (ACS), Royal Society of Chemistry (RSC), UK, Life member of Indian Society of Atomic and Molecular Physics (ISAMP), Catalysis Society of India (CSI) and Orissa Chemical Society (OCS). Awards/Honors received by the Faculty in Teaching and Research include Boyscast Fellowship, visiting fellow (JNCASR & INSA) and DAE, Govt. of India in the past.

The Department has previously received infrastructural grants under various DST-FIST, UGC-SAP programs and UGC 12th Finance Grant. With expertise distributed over different areas in Chemistry Research projects in the Department are sponsored by the Department of Science and Technology, Govt. of India, CSIR, UGC and DAE,. The Department has well equipped laboratories in the fields of analytical, inorganic chemistry, organic and physical chemistry to carry out post graduate laboratory courses and two special laboratories for practical courses of final semester students. In addition to this all faculties have independent research laboratories. All of our primary facilities for characterization are housed in two Central Instrumentation Facility (CIF I and CIF II).

Presently the Department has an enrolment of 50 M.Sc. and 10 M.Phil along with about 15 Ph.D. students. The students are exposed to sophisticated instrumental techniques such as UV-Vis, FT-IR, NMR, DLS, XRD, AAS and fluorescence spectrophotometer during the practical and their project work. The exposure gives them the idea of high quality research in their budding stage itself. The student regularly qualifies for OAS, OPSC, CSIR/UGC NET, GATE and DST Inspire Fellows. Many of our students also receive financial assistance from UGC or from the state government & non government agencies to complete their P.G programme. **Department of Chemistry has 'Alumni Association of Chemistry'(AAC, NOU) that encourages alumni to stay connected with each other, and to impact the next generation.** Developing and strengthening lifelong relationships between alumni will benefit current and future alumni. The Department has been conducting alumni association meet at frequent intervals.

We endeavor to develop academic alliances through national / international collaborations for students/faculty mobility/research cooperation and to be recognized by institutions of higher learning for excellence in teaching, research and mentorship of students. The Department also promotes to contribute to industry and address problems of societal importance.

The students in the Department have established an extraordinary record of achievement. Underlying success of students is a strong, dynamic, interdisciplinary faculty coupled with

a prolific publication rate, a typical student in the program publishes multiple papers cited worldwide. Students have ample access to faculty time, instrumentation and other resources.

Our motto is quality teaching, quality research through collective efforts for the betterment of the Department and Society.