UGC-Human Resource Development Centre

Pt. Ravishankar Shukla University, Raipur-492010

Technical Report

ONLINE REFRESHER COURSE IN CHEMISTRY

Current Trends of Teaching and Research in Chemistry

24.7.2023 to 11.8.2023

UGC-Human Resource Development Centre

Pt. Ravishankar Shukla University, Raipur-492010

ज्ञान-विज्ञान विमुक्तये

ONLINE REFRESHER COURSE IN CHEMISTRY

24.7.2023 to 11.8.2023

Theme of course/Program:	**Online Refresher Course in Chemistry**
Name of Course Coordinator:	**Dr. Kallol K. Ghosh** **Professor & Head** **School of studies in Chemistry** **Pt. Ravishankar Shukla University, Raipur**
Name of course coordinator from HRDC:	**Dr. Brijendra Pandey** **Assistant Professor** **UGC-Human Resource Development Centre** **Pt. Ravishankar Shukla University, Raipur**
Date of Course Program:	**24.07.2023 to 11.08.2023**
Number of Participants:	**33**
State wise number of Participants:	**Chhattisgarh:18, Maharastra:03, Tamil Nadu:04, Karnataka:03, West Bengal:03, Haryana:01, Madhya Pradesh:01**
Gender wise number of Participants:	**Male: 21** **Female: 12**
Number of Resource Persons:	**25**
Name and signature of course coordinator **Prof: KALLOL KUMAR GHOSH**	
Online Platform	
Google Meet	**https://meet.google.com/jfm-eoim-hpj**

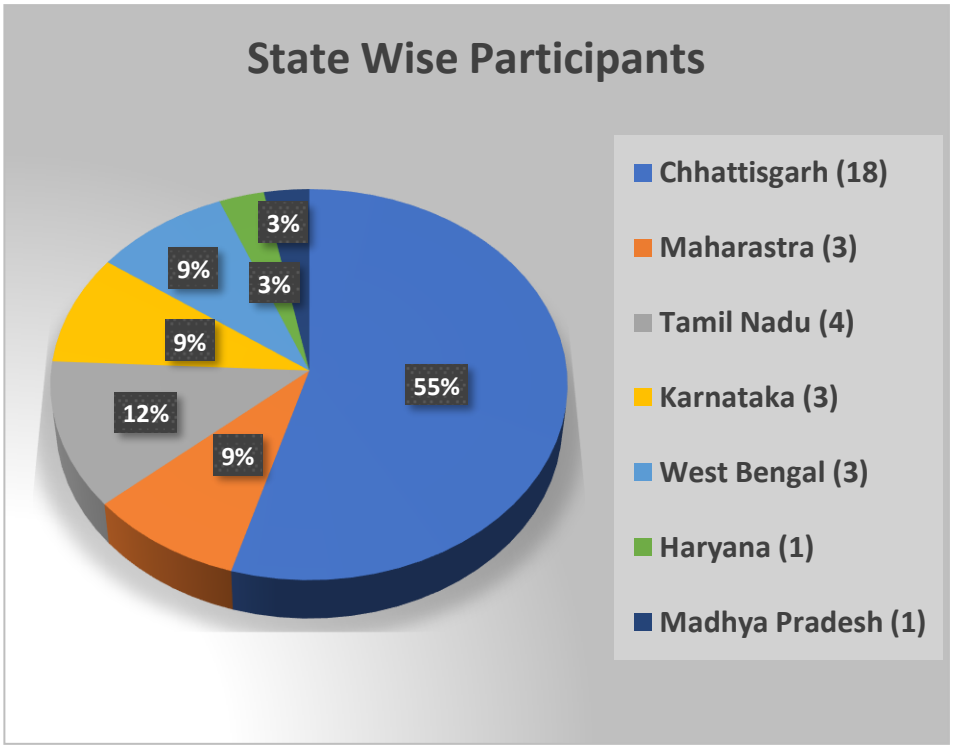
Organizing Team

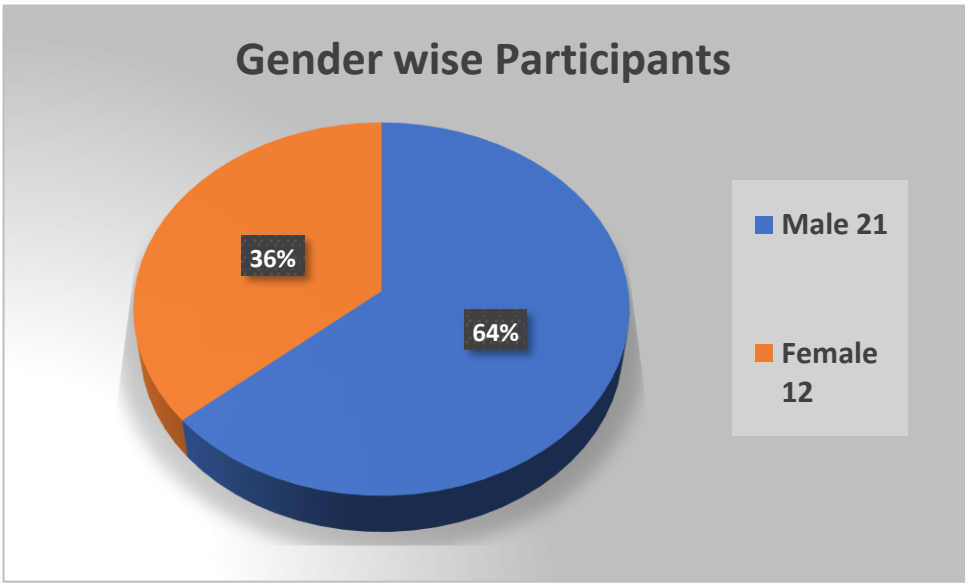
Prof. Sachchidanand Shukla
Vice Chancellor
Pt. Ravishankar Shukla University, Raipur

Prof. Preeti Suresh
Director, HRDC
Pt. Ravishankar Shukla University, Raipur

Dr. Kallol K. Ghosh
Professor & Head, S.O.S. in Chemistry,
Pt. RSU, Raipur (C.G.)
Course Coordinator

Dr. Brijendra Pandey
Assistant Director
HRDC, Pt. RSU, Raipur (C.G.)
Course Coordinator


State Wise Participants
Chhattisgarh (18)
Maharastra (3)
Tamil Nadu (4)
Karnataka (3)
West Bengal (3)
Haryana (1)
Madhya Pradesh (1)
55%
9%
12%
9%
9%
3%
3%


Gender wise Participants
Male 21
Female 12
64%
36%

List of participants

Roll No.	Name of Participants	Email	Designation	Subject	College	University
1.	Dr. Madhurani Shukla	shukla.madhu55@gmail.com	Assistant Professor	Chemistry	SKM Govt.College, Gobra Nawapara, CG	Pt. RavishankarShukla University, Raipur, CG
2.	Mr. Vishal Thawara Rathod	vishutrathod@gmail.com	Assistant Professor	Chemistry	Bhawabhuti ahavidyalaya Amgaon, Dist-Gondia, MS	RTM Nagpur,University, Nagpur
3.	Dr. Swati Chandrawanshi	chemistryswati159@gmail.com	Assistant Professor	Chemistry	Laxman Prasad BaidhGovt. Girls College, Bemetara, CG	Hemchand Yadav University, Durg,CG
4.	Dr. N. Mohamed Basith	mdbasith232@gmail.com	Assistant Professor	Chemistry	The NewCollege, Chennai, Tamil Nadu	University of Madras, Chennai,Tamil Nadu
5.	Dr. K. Mohammed Mustaque	mohamushi@gmail.com	Assistant Professor	Chemistry	The NewCollege, Chennai, Tamil Nadu	University of Madras,Chennai,Tamil Nadu
6.	Mrs. Anita Patel	anitameetpatel@gmail.com	Assistant Professor	Chemistry	Dr. BhimraoAmbedkar Govt. College, Baloda, Dist- Mahasamund,	Pt. RavishankarShukla University, Raipur, CG
7.	Lata Bhoi	latabhoi4@gmail.com	Assistant Professor	Chemistry	Govt. NaveenCollege, Chirko, Mahasamund,CG	Pt. RavishankarShukla University, Raipur, CG
8.	Dr. Tapas Kumar Paira	tpaira@gmail.com	Assistant Professor	Chemistry	Surendranath Evening College, Kolkata, West Bengal	University of Calcutta, Kolkata,West Bengal
9.	Dr. MamtaSaraf	mamtasaraf2008@gmail.com	Assistant Professor	Chemistry	Dr. K.C.B. Govt. P.G. College,Bhilai-3, CG	Hemchand Yadav University, Durg,CG
10.	Dr. Divya Nema	divyanema01@gmail.com	Assistant Professor	Chemistry	Chandu Lal Chandrakar Govt. College,Dist-Dhamdha, Durg, CG	Hemchand Yadav University, Durg,CG
11.	Dr. Goverdhan Vyas	goverdhanvyas82@gmail.com	Assistant Professor	Chemistry	Govt. J. Yoganandam Chhattisgarh College, Raipur, CG	Pt. RavishankarShukla University, Raipur, CG
12.	Priti Khursail	Pritimadhumatke43@Gmail.Com	Assistant Professor	Chemistry	Govt. Rani AvantiBai Lodhi College Ghumka Dist-Rajnandgaon,CG	Hemchand Yadav University, Durg,CG
13.	Khemchand Dewangan	Dewangankc@Gmail.Com	Assistant Professor	Chemistry	Dept. of Chemistry, Indira Gandhi National Tribal University, Amarkantak, MP	Indira Gandhi NationalTribal University, Amarkantak, MP
14.	Dr. Sudip Kumar De	Sudipkde@Gmail.Com	Assistant Professor	Chemistry	Bangabasi Evening College, Kolkata, West Bengal	University of Calcutta, Kolkata,West Bengal
15.	Dr. Deepak Kumar Pandey	Dpndey15@Gmail.Com	Assistant Professor	Chemistry	Veerangana Awanti Bai Lodhi Govt. College, Patharia, CG	Atal Bihari Vajepeyee University, Bilaspur, CG
16.	Dileep Dewangan	Dileepdewangan1812@Gmail.Com	Assistant Professor	Chemistry	Govt. Naveen College, Fasterpur, Dist-Mungeli, CG	Atal BihariVajepeyee University, Bilaspur, CG
17.	Dr. Pratik Kumar Jagtap	Pratik21nit@Gmail.Com	Assistant Professor	Chemistry	The ICFAI University,Raipur,CG	The ICFAI University,Raipur,CG
18.	Khilawan Patel	Khilawanpatel1209@Gmail.Com	Assistant Professor	Chemistry	Govt. K.L. Arts & Commerce College, Bagbahara, Dist-Mahasmund, CG	Pt. Ravishankar Shukla University,Raipur, CG

19.	Gopal Kulkarni	Gaksmpcm23@Gmail.Com	Assistant Professor	Chemistry	Shri Madhavrao Patil Mahavidyalaya, Murum, Dist- Osmanabad, MS	Dr. B.A.M.U. Aurangabad, MS
20.	Prof. (Dr.) Reena Nashine	Reenanashine73@Gmail.Com	Assistant Professor	Chemistry	Chouksey College of Pharmacy, Bilaspur,CG	ChhattisgarhSwami Vivekanand Technical University, CG
21.	Dr. Mahesh Bhat	Maheshbhat@Ppc.Ac.In	Assistant Professor	Chemistry	Poornaprajna College, Udupi, Karnataka	MangaloreUniversity, Mengaluru,Karnataka
22.	Keerthi	Dr.Keerthi1012@Gmail.Com	Assistant Professor	Chemistry	Anna University, Chennai, Tamil Nadu	Anna University, Chennai, TamilNadu
23.	Dr.Gourisankar Roymahapatra	Grm.Chem@Gmail.Com	Assistant Professor	Chemistry	Haldia Institute Of Technology,Haldia, West Bengal	Maulana AbdulKalam Azad Universityof Technology, West Bengal
24.	Dr. S. Angayarkanny	Akilaprince@Gmail.Com	Assistant Professor	Chemistry	Anna University, Chennai, Tamil Nadu	Anna University, Chennai, TamilNadu
25.	Dr. Vandana Agrawal	7999259427a@Gmail.Com	Assistant Professor	Chemistry	Gurukul Mahila Mahavidyalaya ,Raipur, CG	Pt. Ravishankar Shukla University, Raipur, CG
26.	Dr. Ranga Swamy J	Rangaswamyj@Ppc.Ac.In	Assistant Professor	Chemistry	PoornaprajnaCollege, Udupi, Karnataka	Mangalore University,Mengaluru, Karnataka
27.	Mukesh Kumar Patel	mukeshkumar061194@gmail.com	Assistant Professor	Chemistry	Budhan Shah JiGovt. Naveen College,Tendukona, Mahasamund,	Pt. Ravishankar Shukla University,Raipur, CG
28.	Dr. Awanish Kumar Patel	drawanishpatel@gmail.com	Assistant Professor	Chemistry	Govt. College, Janakpur, CG	Sant GahiraGuru Vishwavidyalaya, Ambikapur, CG
29.	Rakesh Madhukarrao Naktode	Rakeshnaktode786@Gmail.Com	Assistant Professor	Chemistry	Dada Ramchand Bakhru SindhuMahavidyalaya,Nagpur, MS	Rashtrasant TukadojiMaharajNagpur University, Nagpur, MS
30.	Sandeep Kumar Kushwaha	Kushwaha6988@Gmail.Com	Assistant Professor	Chemistry	R.G. Go vt.P.G. College, Ambikapur, CG	Sant GahiraGuru Vishwavidyalaya, Ambikapur, CG
31.	Suparna,	Suparna@Ppc.Ac.In	Assistant Professor	Chemistry	PoornaprajnaCollege, Udupi, Karnataka	Mangalore University, Mengaluru, Karnataka
32.	Neelam Ram Dhansay	Neelamramdhansay@Gmail.Com	Assistant Professor	Chemistry	Govt. Kamladevi Rathi MahilaP.G. Mahavidyalaya, Rajnandgoan	Hemchand Yadav, University, Durg
33.	Dr. Amit Rajput	Amitrajput@Jcboseust.Ac.In	Assistant Professor	Chemistry	J. C. Bose University of science & Technology, YMCA Faridabad	J.C. Bose University of Science & Technology, Ymca, Faridabad,Haryana

Time Table: Refresher Course in Chemistry

(24/07/2023 to 11/08/2023)

Inter/Multidisciplinary Refresher Course in Chemistry
(24/07/2023 to 11/08/2023)
UGC-Human Resource Development Centre
Pt. Ravishankar Shukla University, Raipur 492 010, Chhattisgarh

Day/ Date	Session -I (10:30 to 12:00)		Session -II (12:15 to 13:45)		Session -III (14:15 to 15:45)		Session –IV (16:00 to 17:30)
Day 01 (24.07.23)	REGISTRATIONI NAUGURATION INDUCTION	Tea Break	**Lecture-1** **Prof. A. K. Bakhshi** *Chairman, National Resource Centre of Chemistry, MOE, New Delhi*	Lunch Break	**Lecture-2** **Prof. Tarasankar Pal Professor (Retd.) IIT, Kharagpur**	Tea Break	**Lecture-3** **Prof. Vinod Kumar Tiwari** *Department of Chemistry, Banaras Hindu University, Varanasi*
Day 02 (25.07.23)	**Lecture-4** **Prof. Tarashankar Pal Professor(Retd) IIT Kharagpur**		**Lecture-5** **Prof. Vinod Kumar Tiwari** *Department of Chemistry, Banaras Hindu University, Varanasi*		**Lecture-6** **Prof. P. Venkatesu** *Department of Chemistry, Delhi University, Delhi.*		**Lecture-7** **Dr. Suresh Kumar** Department of Chemistry, National Institute of Technology, Surat
Day 03 (26.07.23)	**Lecture-8** **Prof. A.P. Mishra** *Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar*		**Lecture-9** **Prof. Goutam Kumar Patra** *Guru Ghasidas Vishwavidyalaya, Bilaspur, C.G.*		**Lecture-10** **Pro f. Kalluri VS Ranganath** *Dept. of Chemistry, Institute of Science, Banaras Hindu University, Varanasi*		**Lecture-11** **Prof. B. K. Mishra** *Department of Chemistry, Sambalpur University, Sambalpur.*
Day 04 (27.07.23)	**Lecture-12** **Prof. A.P. Mishra** *Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar MP*		**Lecture-13** **Prof. B. K. Mishra** *Department of Chemistry, Sambalpur University, Sambalpur*		**Micro Teaching** **(1-10)** **Prof. D.P. Kuity** *Department of Geology and WRM Pt. R S University*		**Micro Teaching** **(11-20)** **Prof. D.P. Kuity** *Department of Geology and WRM Pt. R S University*
Day 05 (28.07.23)	**Lecture-14** **Prof. Nitin Chattopadhyay** *Department of Chemistry, Jadavpur University, Kolkata*		**Lecture-15** **Prof. Promila Mishra** *Department of Chemistry, Sambalpur University, Sambalpur.*		**Lecture-16** **Prof. Nitin Chattopadhyay** *Department of Chemistry & Former Dean, Faculty of Science, Jadavpur University, Kolkata*		**Micro Teaching** **(20-30)** **Prof. D.P. Kuity** *Department of Geology and WRM Pt. R S University*
Day 06 (31.07.23)	**Lecture-17** **Prof. Promila Mishra** *Department of Chemistry, Sambalpur University, Sambalpur.*	Tea Break	**Lecture-18** **Prof. Kalluri VS Ranganath** *Dept. of Chemistry, Institute of Science, Banaras Hindu University, Varanasi*	Lunch Break	**Micro Teaching** **(30-40)** **Prof. D.P. Kuity** *Department of Geology and WRM Pt. R S University*	Tea Break	**Seminar** **(1-13)** **Prof. Manish Rai** *SoS in Chemistry Pt. R S University, Raipur*
Day 07 (01.08.23)	**Lecture-19** **Dr. Balram Ambade** *Department of Chemistry, NIT, Jamshedpur*	Tea Break	**Lecture-20** **Prof. Sanjiv Kumar** *School of sciences, IGNOU, New Delhi*	Lunch Break	**Seminar** **(13-26)** **Prof. Kamlesh Shrivas** *SoS in Chemistry Pt. R S University, Raipur*	Tea Break	**Seminar** **(27-40)** **Prof. Kamlesh Shrivas** *SoS in Chemistry Pt. R S University, Raipur*

Day 08 (03.08.23)	**Lecture-21** **Prof. Nandkishor Karade** *Department of Chemistry, RTM University, Nagpur*		**Lecture-22** **Prof. Sanjiv Kumar** *School of sciences, IGNOU, New Delhi*		**Lecture-23** **Prof. Anand Aswar** *Department of Chemistry SBG Amravati University, Amravati*		**Project** **(Group 1-4)** **Prof. Kamlesh K. Shrivas** *School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.)*
Day 09 (04.08.23)	**Lecture-24** **Prof. Nandkishor Karade** *Department of Chemistry, RTM University, Nagpur*		**Project** **Prof. Manas K. Deb** *School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.)*		**Lecture-25** **Prof. Shamsh Pervez** *School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.)*		**Project** **Prof. Manas K. Deb** *School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.)*
Day 10 (07.08.23)	**Lecture-26** **Prof. Bhisma K Patel** *Department of Chemistry, IIT, Guwahati, Assam*		**Lecture-27** **Prof. Anand Aswar** *Department of Chemistry SBG Amravati University, Amravati*		**Project** **Prof. Manas K. Deb** *School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.)*		**Lecture-28** **Prof. S.P. Singh** *Department of Chemistry CSIR, IICT Hyderabad*
Day 11 (08.08.23)	**Lecture-29** **Prof. Bhisma K Patel** *Department of Chemistry, I IT, Guwahati, Assam*		**Lecture-30** **Prof. Anjali Pal** *Department of Chemistry IIT. Kharagpur*		**Lecture-31** **Prof. R D Kaushik** *Department of Chemistry Gurukul Kangri University Haridwar*		**Lecture-32** **Dr. Manmohan Lal Satnami** *SoS in Chemistry Pt. R S University, Raipur*
Day 12 (10.08.23)	**Lecture-33** **Prof. Anjali Pal** *Department of Chemistry IIT. Kharagpur*		**Lecture-34** **Prof. R D Kaushik** *Department of Chemistry Gurukul Kangri University Haridwar*		**Lecture-35** **Prof. Manas K. Deb** *School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.)*		**TEST**
Day 13 (11.08.23)	**VALEDICTORY**						

DAY 1, 24 07 2023

24-07-2023: First Session 10:30 AM to 12:00 Noon

Inaugural function of Online Refresher Course in Chemistry was held, on Monday 24 July, 2023 at 10:30 AM (Online via Google Meet) in the presence of Chief Guest **Prof. Sachchidanand Shukla** Hon'ble Vice-Chancellor Pt. Ravishankar Shukla University, Raipur, Prof. Preeti K. Suresh, Director UGC-HRDC, Prof. Kallol K. Ghosh, Course Coordinator and Dr. Brijendra Pandey, Assistant Director from HRDC, Pt. Ravishankar Shukla University, Raipur (C.G.) At the out set Prof. Kallol K. Ghosh, Course Coordinator welcomed the gathering and explained the objectives and subject material of the Refresher Course. Prof. Ghosh told that keeping the theme in mind, the course content was designed and Resourse Persons from various academic intuitions were invited to deliver lectures. Prof. Preeti Suresh, Director HRDC discussed above the activity of HRDC, and role of teachers as per the New Education Policy. The Chief Guest and Patron Prof. Sachchidanand Shukla, Vice Chancellor Pt. Ravishankar Shukla University greeted all the participants for choosing Pt. Ravishankar Shukla University for this Refresher Course, He also welcomed all the young faculty members and motivated them to learn new dimension related to chemistry teaching and learning. He emphasized on research-oriented teaching and quality assurance. Dr. Brijendra Pandey, Assistant Director, HRDC proposed vote of thanks. The Inaugural Session ended with the self-introduction of the Participants.

24-07-2023: Second Session 12:15 PM to 01:45 PM

Prof. A. K. Bakhshi,

National Resource Center of Chemistry, MoE, New Delhi.

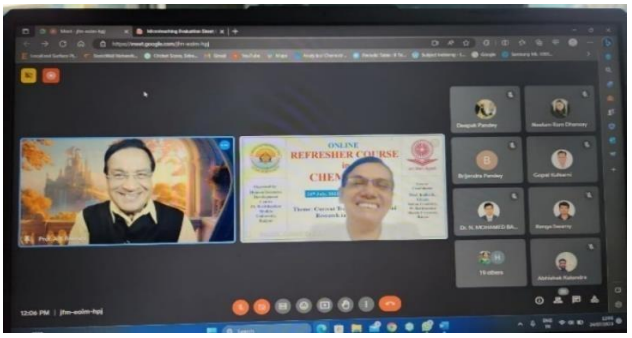
Need to Redesign Chemical Education in India for Excellence in Chemical Research

The Inaugural lecture was delivered Prof. A. K. Bakhshi. His Lecture included Why and How we can redesign Chemical Education, Role of Pivot of Education System- Teachers and road map for enhancing quality of Chemical education in India.
According to him more stress must be given on developing well trained mind rather than well filled minds. He explained the role educators in redeveloping chemical curriculum based on problem solving, creativity and role of writing and oral skills.
He also explained the following qualities of Chemical Educators in 21st Century

I. Knowledge (interdisciplinary, disciplinary and practical)

II. 21st Century skills

III. Values, attitudes, Traits and Personality.



24-07-2023: Third Session 02:15 PM to 03:45 PM

Prof. Vinod Kumar Tiwari

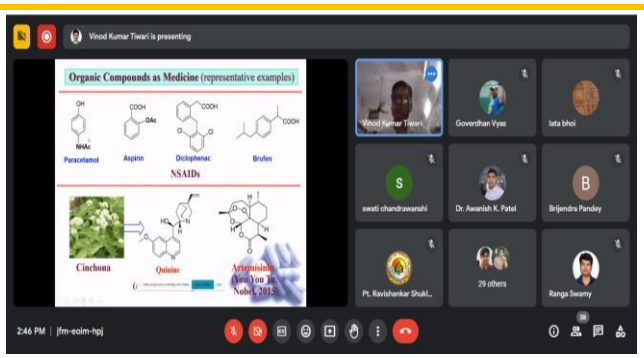
Department of Chemistry, Banaras Hindu University, Varanasi.

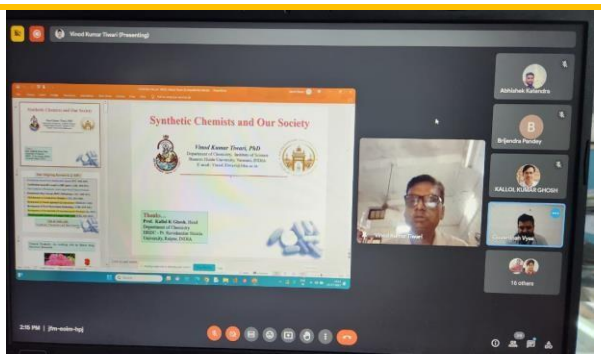
Synthetic Chemist and Our Society

He started his presentation with the click chemistry of carbohydrates. Initially, He was discussed about the natural products evolving role in future drug discovery research and the highly expeditious synthesis of bicyclic iminosugar. Prof. Tiwari highlighted the role of thiogroup containing green vegetables in protection from cancer disease and the discovery of ATP, their function along with synthetic pathways and discussed the difference between some sugar moieties in terms of sweeter comparison with one another. The lecture covered the chemistry of organometallic compounds, especially iron-bearing organometallic derivatives such as ferrocene. In the continuation of his

presentation, the organic compounds, and their application in the field of medicine as antibiotics, anti-malarial, anti-diabetic and anti-dippresent has been summarized.

He also received considerable attention for explaining his own research work on protein-sugar interactions play vital roles in many biological process. Finally, he concluded his presentation by highlighting the synthetic chemist have a great role in making our life healthy and wealthy. Within one and half hour lecture he summarized lot of information related to synthetic chemists and their contribution to society and with details of the Nobel prize awarded for the same. The session really enlightened the participants about synthetic chemistry and their importance to society in the field of biology and medicinal chemistry.





24-07-2023: Forth Session 04:00 PM to 05:30 PM

Prof. Tarasankar Pal

School of Applied Sciences, KIIT, Odisha. Retd. Professor, Department of Chemistry, IIT Kharagpur

"New Discovery Involving Metalloid Arsenic"

In his inspiring lecture, Prof. Tarasankar Pal, Retired Professor, IIT, Kharagpur introduced about the interesting topic entitled "New Discovery Involving Metalloid Arsenic". He designed and enlightened the Grinding Mixing Protocol (GMP) method for synthesis of nanoparticle by taking the example of synthesis of arsenic nano particles by reaction of Arsenic, Catechol and Sodium Borohydrate in different portions with respect to variable pH. Further, he extended discussion of the formed arsenic Gray colour nano particles reaction with Gold and Silver solution for the synthesis of Au(0) and Ag(0) particles and are observed at different wavelength in the range of UV-Visible. He has nicely presented toxicity and testing of arsenic content by using a simple method using sodium carbonate, importance of catechol, fluorescence, carbon filament and tungsten filament-based bulb discovery. At the end of the lecture, one of the participants, Dr. Khemchand Dewangan, Indira Gandhi National Tribal University asked questions related to the topic covered by Prof. Tarasankar Pal. All the participants were satisfied with his answer.

DAY 2, 25-07-2023

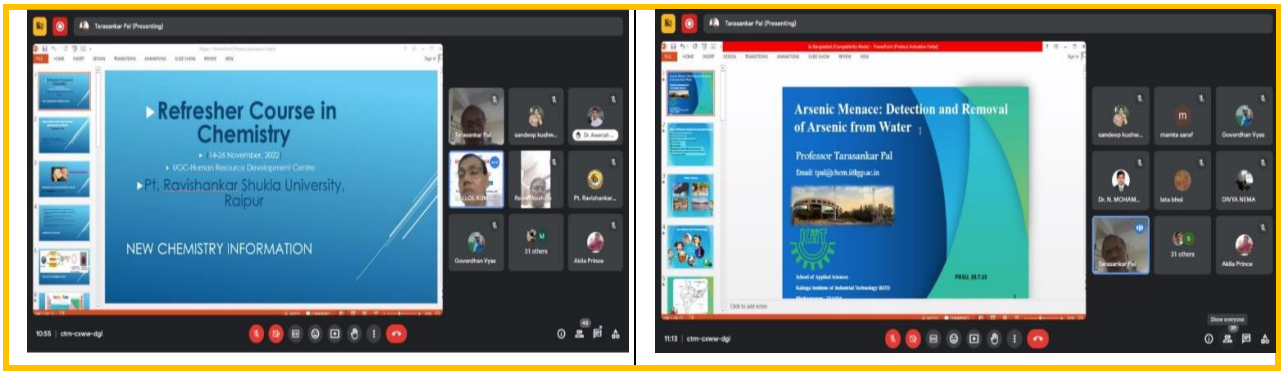
25-07-2023: First Session 10:30 AM to 12:00 Noon

Prof. Tarasankar Pal

School of Applied Sciences, KIIT, Odisha. Retd. Professor, Department of Chemistry, IIT Kharagpur.

Arsenic Menace: Detection and Removal of Arsenic from water

In his inspiring lecture, Prof. Pal discussed about the arsenic poison. He explained some simple method of removal of Arsenic. The interesting grey coloured nanoparticle of arsenide synthesis was narrated by the speaker. He explained the detection of traces of arsenic compounds by the fluorescence Technique. The potential arsenic removers like iron and portland cement and their chemistry was really interesting. The speaker also touched on the very interesting facts of chemistry like the difference between spectrometry and spectrophotometry, interesting information and facts about EDTA. The speaker also asked many questions and made the session very lively. The participants also actively answered the questions and impressed the speaker. As a whole a full-fledged lecture by Prof. Tarasankar Pal was a perfect blend of Teaching and Research.



25-07-2023: Second Session 12:15 PM to 01:45 PM

Prof. Vinod Kumar Tiwari

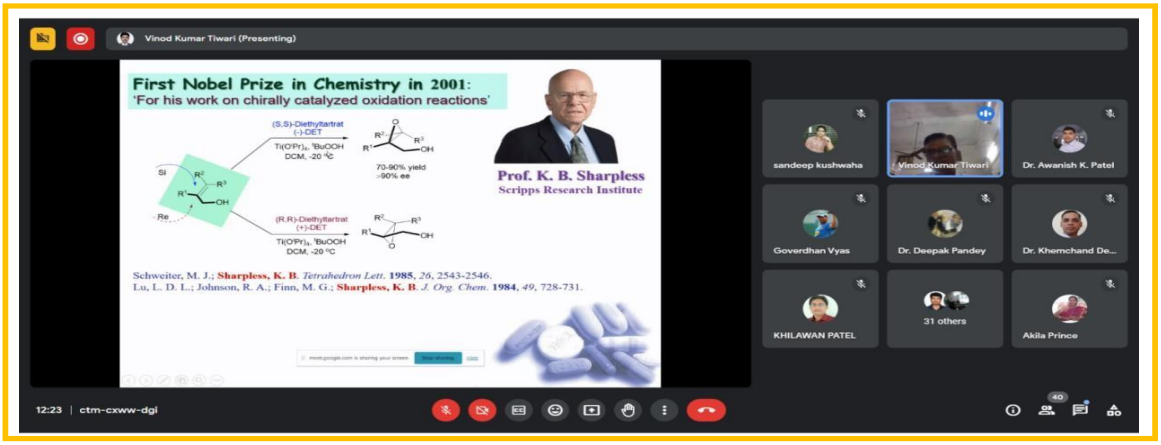
Department of Chemistry, Banaras Hindu University, Varanasi.

"CLICK CHEMISTRY - A NOBEL PRIZE REACTION FOR THE YEAR 2022: THE GROWING IMPACT IN GLYCOSCIENCE"

He started his presentation with the introduction of click chemistry. He has given number of examples on click chemistry which includes Nobel Prize winning click chemistry reactions. It was amazing to note how the speaker could concise so many articles accurately relevant to each other with the year of publication, sometimes even accurate up to the number of days. The lecture was a

perfect example of how a literature survey is to be done. The speaker narrated the findings along with some interesting incidents which made us to appreciate the research work of the speaker. The lecture made us to understand how click chemistry is useful with respect to glycoside reactions. He also emphasised on the wide opportunity on the linkage of sugar moiety to other molecules. He explained the role of sugar in drug discovery. As a whole it was a very impressive presentation with excellent citation from publications like chemical reviews. The speaker made us to appreciate his 176 reputed publications, patents and books from his research.

The speaker also emphasized on the need for the joined research of chemist and a biologist for a fruitful outcome. The participants showed great interest in the presentation by the way of asking information and doubts on the topic.



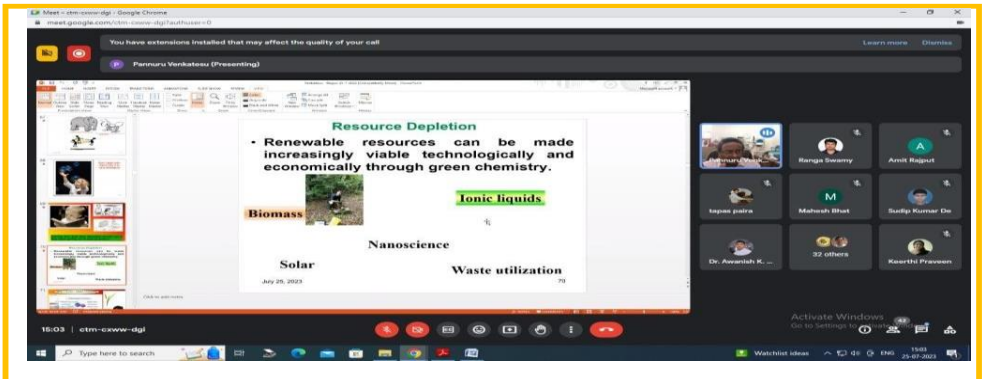
25-07-2023: Third Session 02:15 PM to 03:45 PM

Prof. Pannaru Venkatesu

Department of Chemistry, University of Delhi, Delhi.

"Ionic Liquids as Green Solvents for Enhanced Stability of Proteins Against Multiple Stresses"

Prof. Venkatesu explained proteins as biopolymers formed by the condensation polymerization of amino acids linked by peptide bonds. Its various functions such as DNA replication, catalyzing metabolic reactions, transportation of molecules, providing structures to cells and responding to stimuli were explained by him. Various stresses such as temperature, pressure, and chemicalscan affect the stability of proteins. Ionic Liquids which is known as green solvent can act as a protective shield for these proteins and help them maintain their compact structure. The stericrepulsion between water molecules and Ionic Liquids is responsible for maintaining the foldedstructure of proteins. It can also act as a thermal additive in the thermal denaturation of enzymes. All these concepts were explained effortlessly by the Professor. Many characterization techniques such as UV-Vis, circular dichroism (CD), and Fourier transform infrared (FT-IR) spectroscopies were elucidated by him and showed his impact as a researcher.



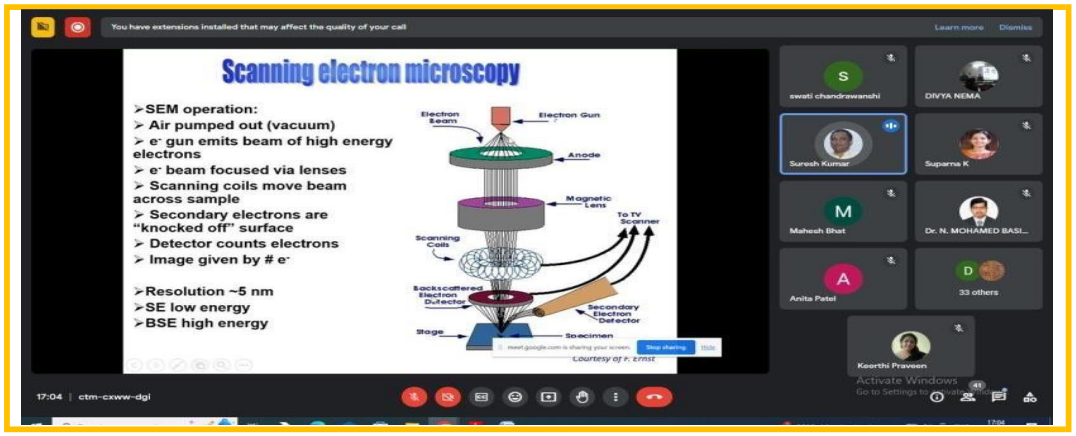
25-07-2023: Forth Session 04:00 PM to 05:30 PM

Dr. Suresh Kumar Kailasa

Department of Chemistry, SVNIT, Surat

SYNTHESIS OF NANOSTRUCTURE MATERIALS: CHARACTERIZATION BY VARIOUS ANALYTICAL TOOLS

Dr. Suresh explicitly gave introduction to Nanomaterials and their significant applications in multidisciplinary areas because of their size dependent electrical, optical, and molecular properties. Their superior properties in the nanoscale than in bulk were explained. Two approaches for the preparation of nanoparticles: Top-down approach and Bottom-up approach were explained with emphasis on various physical, chemical and biological method.Characterization techniques for the detailed study of the nanomaterials were also discussed indetail by him such as UV-visible, FTIR, Fluorescence, AFM, scanning electron microscopy and transmission electron microscopy. His research on various application of nanomaterials specifically on biomarkers were very inspiring to the participants and the session prolonged till 6pm.



DAY 3, 26-07-2023

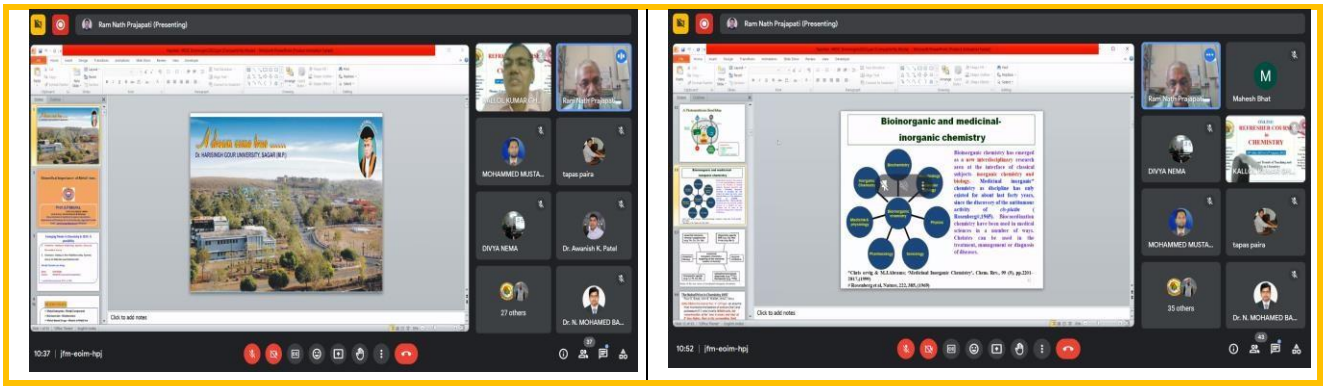
26-07-2023: First Session 10:30 AM to 12:00 Noon

Prof. A. P. Mishra

Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar, Madhya Pradesh

Biomedical importance of metal ions

Prof. Mishra explained bioinorganic and medicinal inorganic chemistry with the nature of sodium and potassium ion transport in a lucid manner. He covered the chronologically, the discovery of the essential elements, metallo biomolecules, biological roles of metallic elements in terms of structural, and charge neutralization etc.. He explained the bioinorganic classification of life essential elements, the effects of metal deficiency and metal excess in the human body. Prof. Mishra discussed the concepts of inter-element effects, which has enhanced knowledge of the participants.



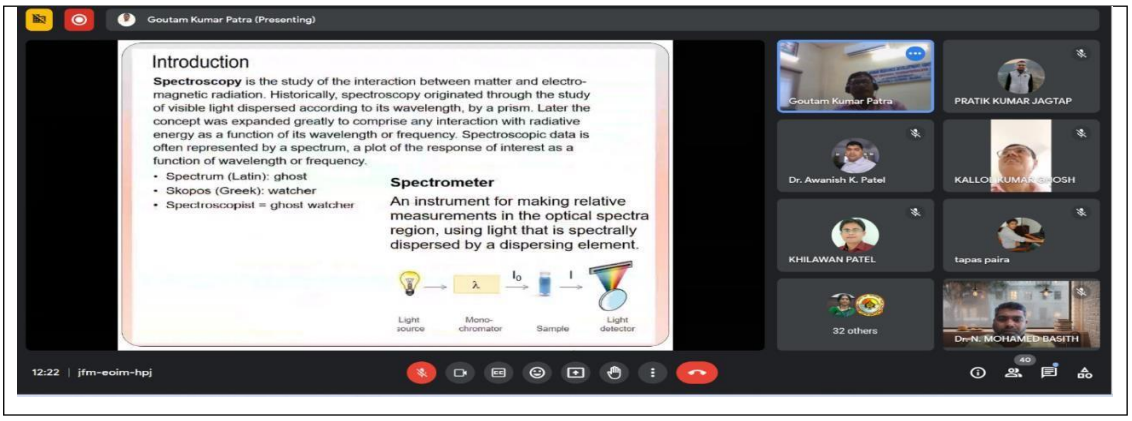
26-07-2023: Second Session 12:15 PM to 01:PM

Prof. Goutam Kumar Patra

Department of Chemistry, Guru Ghasidas Vishwavidyalaya Central university, Bilaspur.

"Electron Spin Resonance Spectroscopy: An efficient tool for Modern Research"

Prof. Patra explained the use of electron spin resonance spectroscopy as an efficient tool for modern research. He elucidated the working formula of ESR spectroscopy, selection rule for ESR spectroscopy and different types of ESR/EPR spectra. He also clarified the different section like, determination of 'g' value, proportionality factor, and factors affecting 'g' value, hyperfine splitting, hyperfine interactions/super H hyperfine splitting, and zero-field splitting. He also described the topic with some examples like cyclopentadienyl radical, naphthalene anion, benzoquinone, pyrazine anion, and methyl radical. He has explained the concepts about ESR spectra, instrumentation, and their versatile applications.



26-07-2023: Third Session 02:15 PM to 03:45 PM

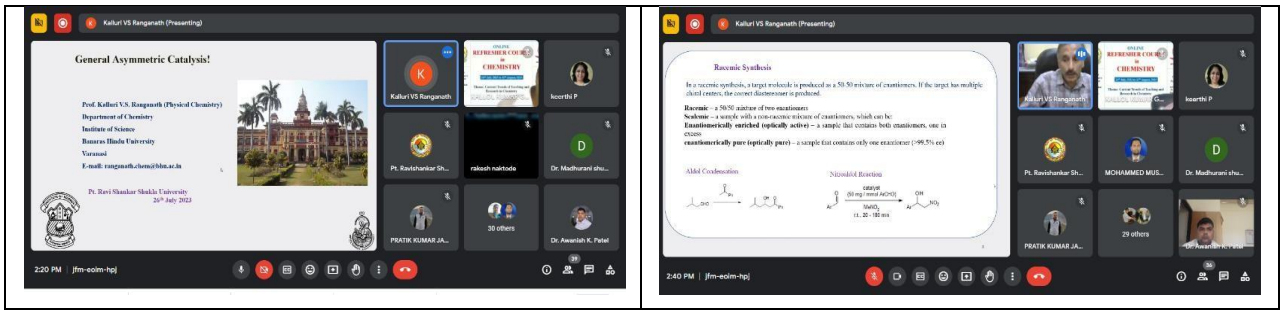
Prof. Kalluri VS Ranganath

Department of Chemistry, Institute of Science, Banaras Hindu University, Varanasi.

"General Principal of Asymmetric Catalysis"

He started his presentation with the "General Principal of Asymmetric Catalysis". Initially, Sir was discussed about the catalysis products' evolving role in Catalysis. what is catalysis, racemic

compound, resolution meso compound. Synthesis of Racemic compound, what is kinetic Resolution and describe a rate constant, change a free energy and Desymmetisation and kinetic Resolution etc



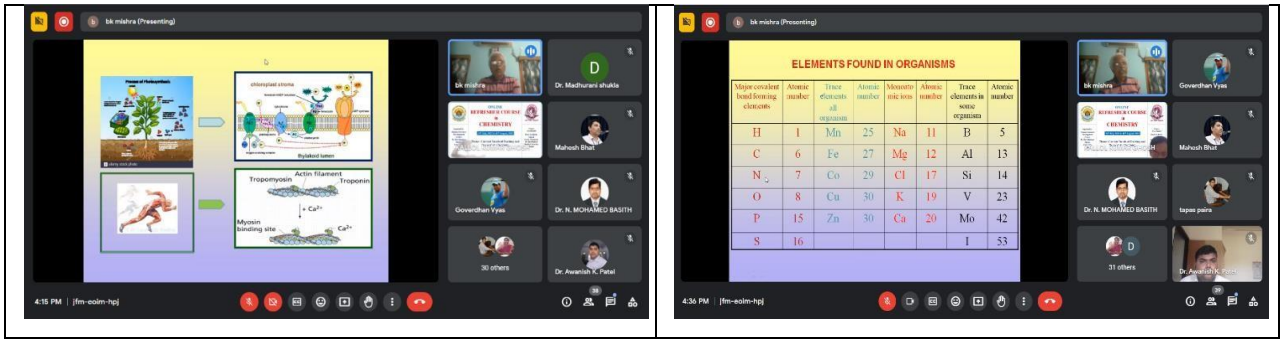
26-07-2023: Forth Session 04:00 PM to 05:30 PM

Prof. B. K. Mishra

Department of Chemistry Sambalpur University Sambalpur

"Molecular Organization"

Prof. Mishra was discussed about the Molecular Organization evolving role in plant understanding nature through molecular interaction method develops for studying molecular organization by using NMR. Sulphur biomolecules exert important functions in all living organisms and their transformations are involved in metals' transport, free radicals scavenging, tissue integrity protection, enzyme functionality, DNA methylation and repair, regulation of gene expression, protein synthesis, molecules in plants and animals. The nature of Intermolecular Forces. Type of molecular bonding, Dipole-Dipole interaction, special emphasis has been given on molecular interaction, types of molecular bonding and dipole-dipole interaction.



DAY 3, 26-07-2023

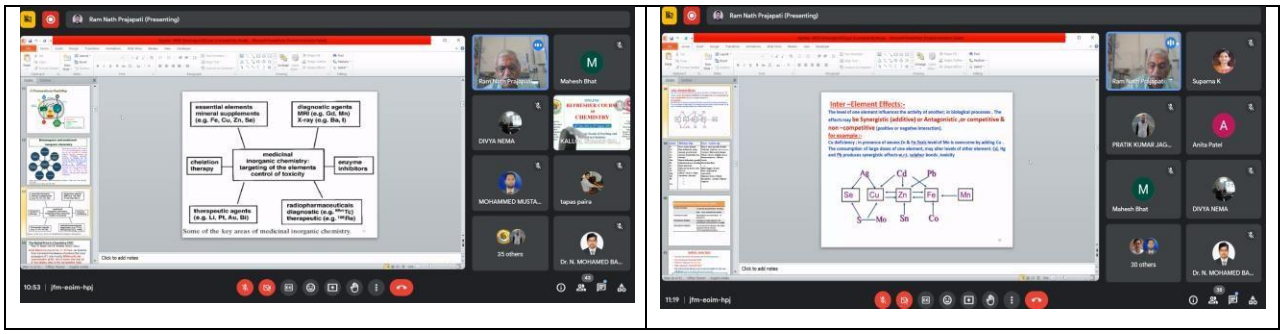
27-07-2023: First Session 10:30 PM to 12:00 Noon

Prof. A. P. Mishra

Department of Chemistry, Dr. Harisingh Gour Vishwavidyalaya, Sagar, Madhya Pradesh

MEDICINAL INORGANIC CHEMISTRY: PRACTICES, PROSPECTS AND CHALLENGES

Prof. Mishra discussed the various aspects of medicinal inorganic Chemistry. Special emphasis has been given on practice, prospects and challenges of Bioinorganic Chemistry. He has interacted with the participants.



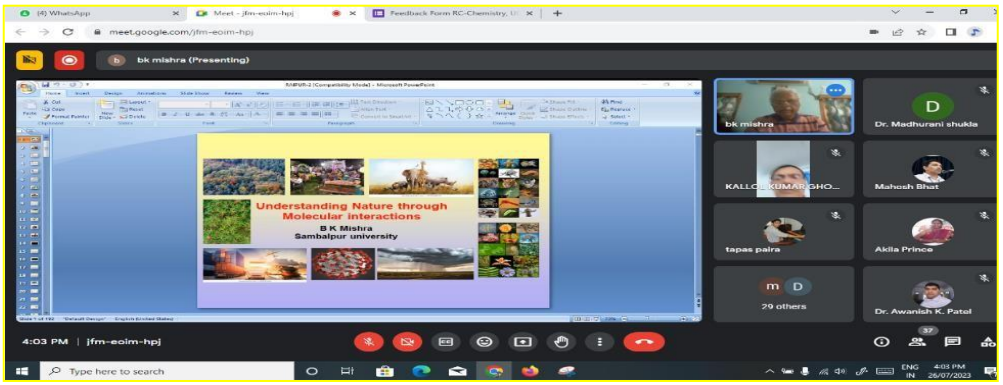
27-07-2023: Second Session 12:15 PM to 01:45 PM

Prof. B. K. Mishra

Department of Chemistry Sambalpur University Sambalpur

Understanding Nature through Molecular Interaction

In his second lectures Prof. Mishra discussed on different aspects of molecular organizations, The formation, Characteristics and applications of micelles, reverse micelles, microemulsions and Lipomers have been discussed. The importance of Supramolecular complexes and host- guest Chemistry is also included.



27-07-2023: Third and Forth Session 02:15 PM to 05:30 PM

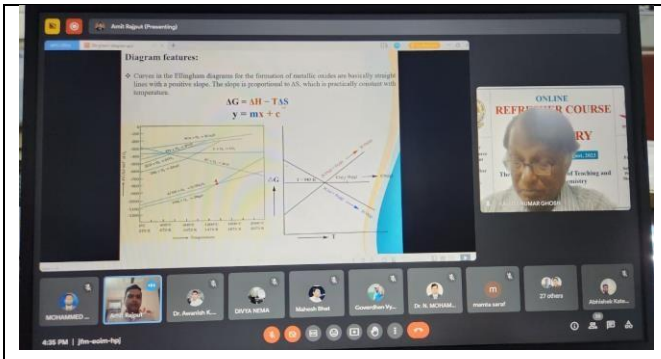
Prof D. P. Kuity

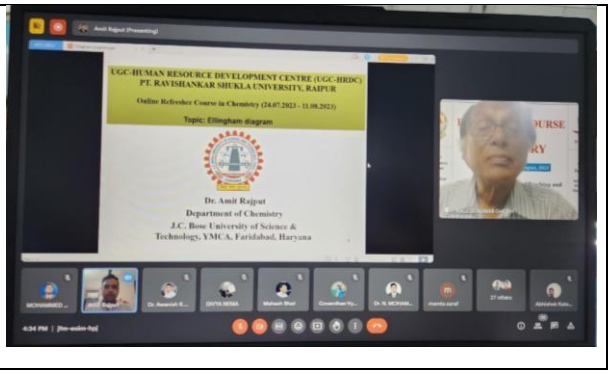
Department of Geology and WRM Pt. R S University

Micro Teaching

In this session following participants presented microteaching Prof. D. P. Kuity reviewed their microteaching.

S.N.	Name	Micro-Teaching Title
1.	Dr. Madhurani Shukla	Hydrogen bond
2.	Mr. Vishal Thawara Rathod	Aromatic Electrophilic Substitution Reaction
3.	Dr. Swati Chandrawanshi	Attacking reagents
4.	Dr. N. MohamedBasith	Solid State Chemistry
5.	Dr. K. Mohammed Mustaque	Amino Acids
6.	Mrs. Anita Patel	Reaction intermediate
7.	Lata Bhoi	Metalloporphyrins
8.	Dr. Tapas Kumar Paira	An introduction to carbonyl chemistry.
9.	Dr. MamtaSaraf	Pseudoorder Reactions
10.	Dr. DivyaNema	Acidic nature of phenol
11.	Dr. GoverdhanVyas	Biofuels: Present and Future Perspective
12.	Priti Khursail	Photochemistry
13.	KhemchandDewangan	Linear Free Energy Relationships
14.	Dr. Sudip Kumar De	VSEPR Theory
15.	Dr. Deepak Kumar Pandey	Catalysis





DAY 5, 28-07-2023

28-07-2023: First Session 10:30 AM to 12:00 Noon

Prof. Nitin Chattopadhyay

Department of Chemistry, Jadavpur University, Kolkata

Attitude of Learning and Teaching

He started his lecture by a Quotation given by Dr. A.P.J. Kalam "Problems are common, but attitude makes different". He shared his realization in different way related to teaching and learning. He clearly explained, what should be the objective of education and what will be role teachers and students.

He covered the following topics in a very lucid manner to enrich us

1. What points to follow to be a good teacher:

a. Try to say "I do not know" if we do not know the topics.

b. Listen to the students to be a good teacher.

c. Try to create interest to students.

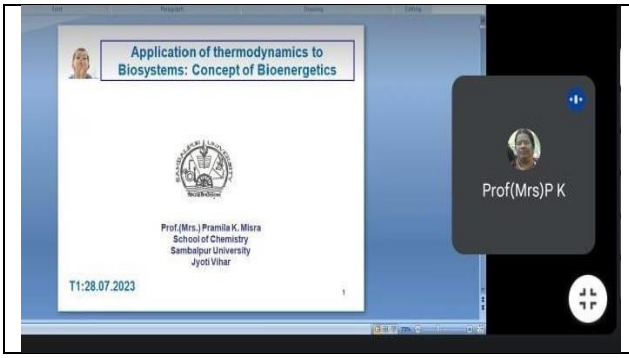
d. Try to correlate science with society with vice-versa.

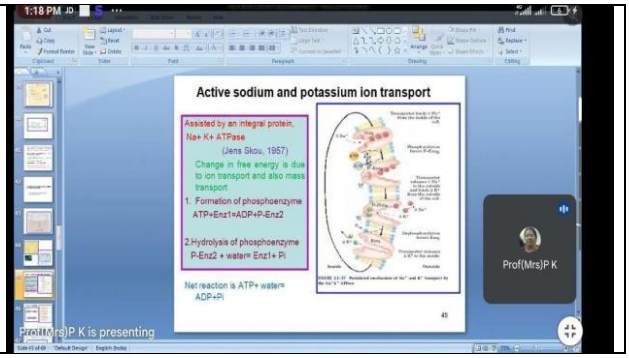
28-07-2023: Second Session 12:15 PM to 01:45 PM

Prof. Promila Mishra
School of Chemistry, Sambalpur University, Sambalpur

"Application of thermodynamics to biosystems"

Prof. Mishra explained the use thermodynamics in biological systems. She explained the topics like free energy change during the biological process, release of large amount energy during hydrolysis in ATP, sodium and potassium ion transport, biological oxidation in dehydrogenation, biological reduction, GTP hydrolysis, etc.



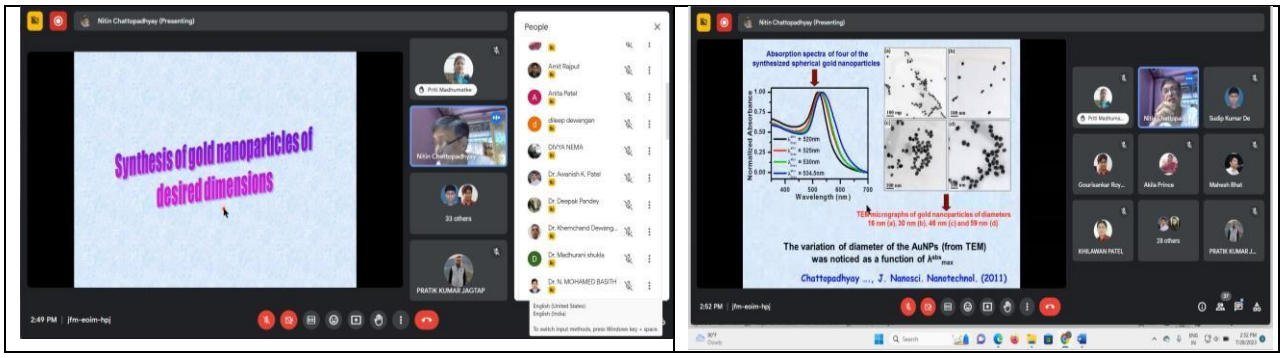


28-07-2023: Third Session 02:15 PM to 03:45 PM

Prof. Nitin Chattopadhyay
Department of Chemistry, Jadavpur University, Kolkata

Development of Strategies from Simple Ideas

His lecture included Why and How we can redesign Chemical Education, Importance of metal ions in sensing, various methods used in sensing, characterization of nanomaterials using TEM and spectroscopy, graphical representation of drug delivery systems, mechanism in expelling the absorbed drugs from the body and finally exogenous delivery of PSF to DNA. At the end of the session the participants cleared their queries with the speaker.



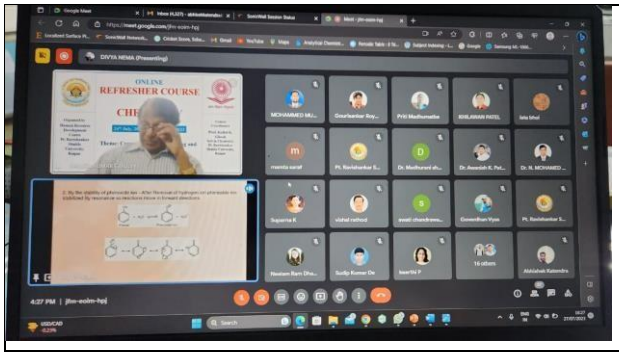
28-07-2023: Forth Session 04:00 PM to 05:30 PM

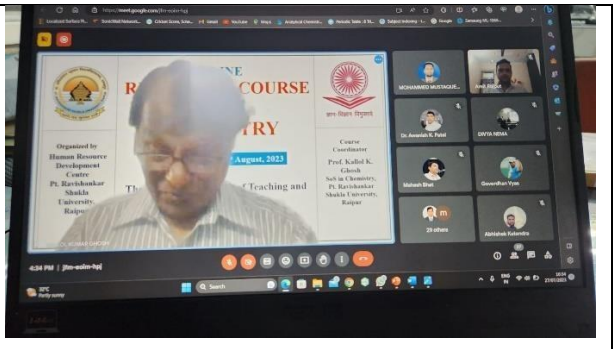
Prof D. P. Kuity
Department of Geology and WRM
Pt. R S University

Micro Teaching

In this session following participants presented microteaching Prof. D. P. Kuity reviewed their microteaching.

S.N.	Name	Micro-Teaching Title
1.	Dileep Dewangan	Co-Ordination Compound
2.	Khilawan Patel	Heavy metal pollutions in Aqueous sample
3.	Dr. Mahesh Bhat	Hydrocarbons
4.	Keerthi	Width and intensity of spectral lines
5.	Dr. Gourishankar Roymahapatra	Hydrogen Storage on Organo-Li systems.
6.	Dr. S. Angayarkanny	Recycling techniques of plastic waste
7.	Dr. Vandana Agrawal	Crystal Field Theory





DAY 6, 31-07-2023

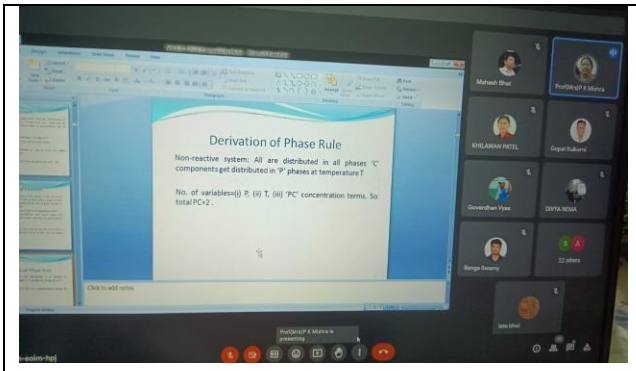
31-07-2023: First Session 10:30 AM to 12:00 Noon

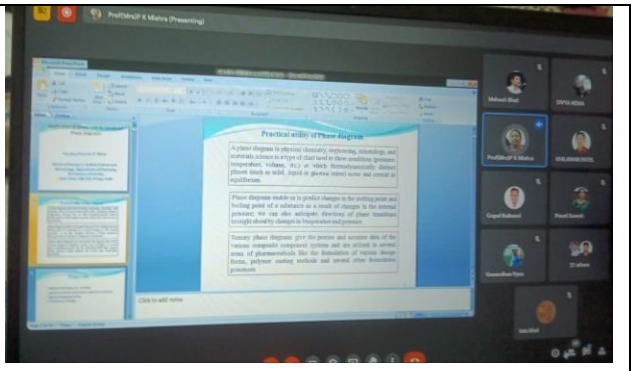
Prof. Promila Mishra

Department of Chemistry, Sambalpur University Sambalpur

Application of Phase rule to construct phase diagram

Prof. Promila Mishra briefly explained the definition of the phase component and phase diagram of sulphur. She also explained the derivation of phase rule. She discussed the Phase diagram of two components system, further she explained the equilibrium in two and three phase. Prof. Mishra discussed the concepts of Phase rule and how to make a phase diagrams, which has enhanced knowledge of the participants.





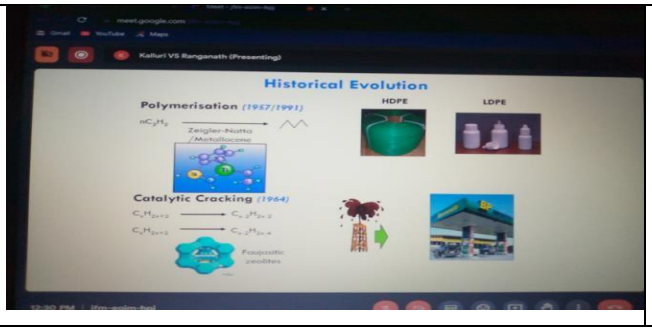
31-07-2023: Second Session 12:15 PM to 01:45 PM

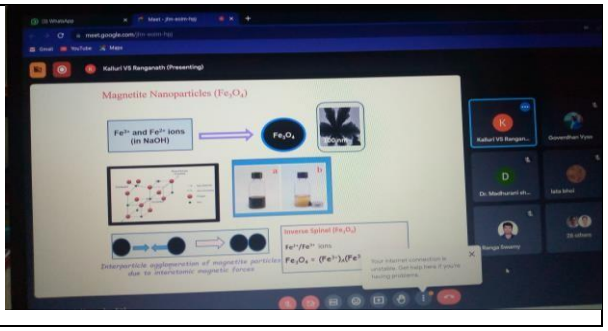
Prof. Kalluri V S Ranganath

Department of Chemistry, Institute of Science Banaras Hindu University, Varanasi

General Principles of Asymmetric Catalysis

Prof. Ranganath. He explained about the surface science and catalyst. He also briefed about how to accelerate a chemical reaction. He also covered extensively the historical evolution of polymerization and catalytic cracking. He briefly explained the nanoparticles in catalysis and advantages in catalytic technology. Further, he explained the Chiral inorganic nanostructures systemic catalysis.

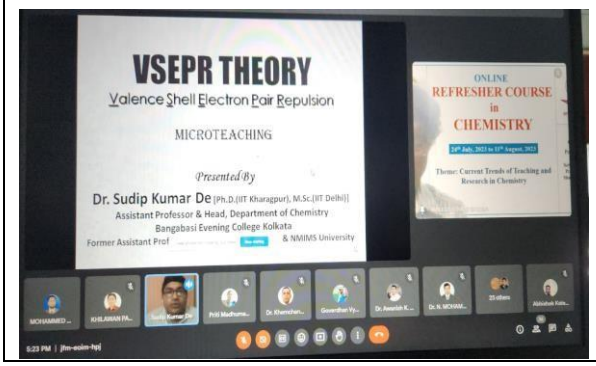


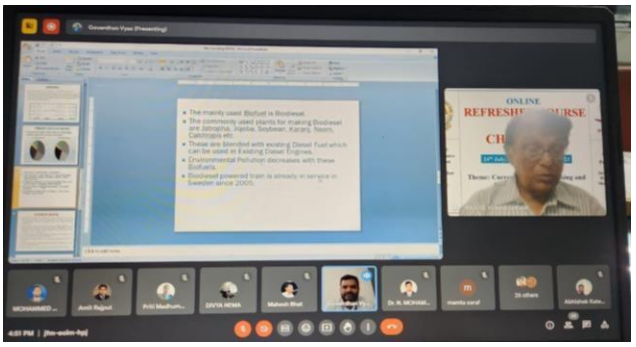


31-07-2023: Third Session 02:15 PM to 03:45 PM

The Session was started with the Microteaching of slot-4 consisting of 8 participants. Lecture on different topics were given by each participant. The Reviewer Prof. D.P. Kuity evaluated the microteaching. Name of participants and their topics are mentioned below:

S.N.	Name	Micro-Teaching Title
1.	Dr. Ranga Swamy J	Symmetry and Point Group
2.	Mukesh Kumar Patel	Hard and Soft acid base Principle
3.	Dr. Awanish Kumar Patel	Molecular Vibration in IR Spectroscopy
4.	Rakesh Madhukarrao Naktode	R.S Nomenclature in 3D Organic Structure
5.	Sandeep Kumar Kushwaha	Reducible Representation
6.	Suparna	Methods of Analysis
7.	Neelam Ran Dhansay	Aromaticity in Benzenoid and Non BenzenoidCompounds
8.	Gopal Kulkarni	Phase Rule





31-07-2023: Forth Session 04:00 PM to 05:30 PM

Prof. Manish K. Rai

School of Studies in chemistry

Seminar

In this Seminar Session 12 participants deliveredseminar on various topics . Prof M. K. Rai evaluated the seminar. Name of participants and their topic are as follows

S.N.	Name	Topic
1	Dr. Madhurani Shukla	Safety Hazards in Laboratory

2	Mr. Vishal Thawara Rathod	Chemical Safety and Environment
3	Dr. Swati Chandrawanshi	Safety Hazards in laboratory
4	Dr. N. Mohamed Basith	Chemical Hazards in Laboratory
5	Dr. K. Mohammed Mustaque	Chemical Safety and Environment
6	Mrs. Anita Patel	Research Oriented in Chemistry
7	Lata Bhoi	Safety Hazards in Laboratory
8	Dr. Tapas Kumar Paira	Chemical Safety and Environment
9	Dr. Mamta Saraf	The Future of NET ZERO
10	Dr. Divya Nema	Safety Hazards in Laboratory
11	Dr. Goverdhan Vyas	Research Oriented Teaching in Chemistry
12	Priti Khursail	Chemical Safety and Environment

DAY 7, 01-08-2023

01-08-2023: First Session 10:30 AM to 12:00 Noon

Prof Balram Ambade

NIT, Jamshedpur

Black Carbon –Climate Significance on Air and Climate Change

Dr. Ambade explained how black carbon is responsible for pollution. What are the health hazardous effect of Black Carbon. Physical properties of black carbon also explain by him. Methods of Analysis and what type of research is conducted by him and projects also done by him. He gave overall idea about the black carbon all over the world.

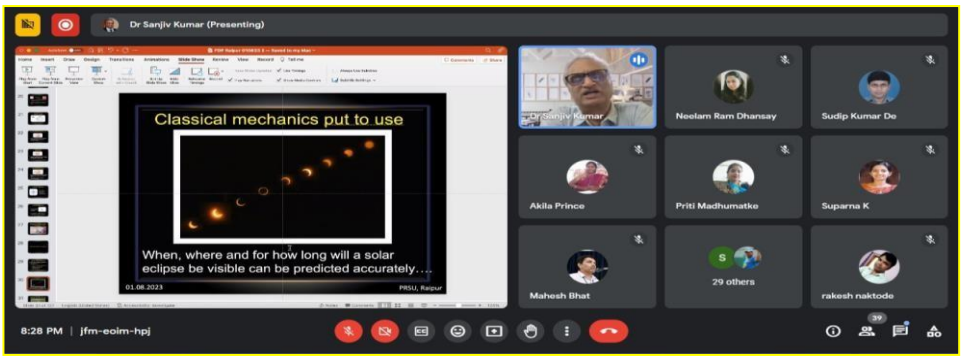
01-08-2023: Second Session 12:15 PM to 01:45 PM

Prof Sanjiv Kumar

School of Sciences, IGNOU, New Delhi

Electronic Structure of Atom

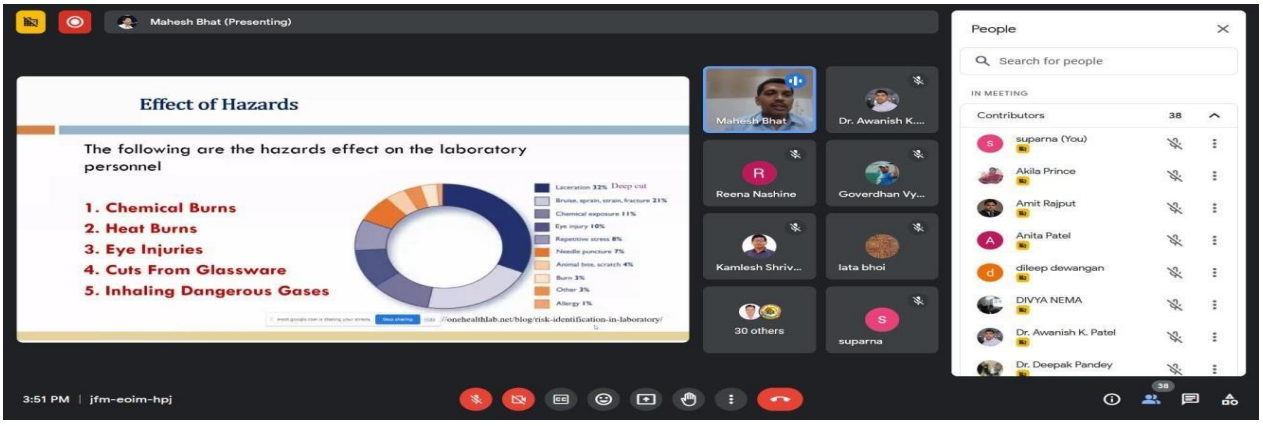
In his lecture Prof Sanjiv Kumar discussed about structure of atom. He very explained about the orbitals, types of their interaction. He makes each and every concept clear.



01-08-2023: Third & Forth Session 02:15 PM to 03:45

In session III and IV 34 participants deliver seminars on different topics given by them. The Prof. Kamlesh Shrivas was the reviewer for the seminar and evaluated this session with valuable question and suggestion. The name of participants are given below:

Roll No.	Name of the Participants	Seminar Topic
13	Dr. Khemchand Dewangan	Learning Chemistry through Computer
14	Dr. Sudip Kumar De	National green hydrogen Mission
15	Dr. Deepak Kumar Pandey	Oxidation and Reduction
16	Dileep Dewangan	Chemical Safety in laboratory
17	Dr. Pratik Kumar	Jagtap Chemical safety and environment
18	Khilawan Patel	The national green hydrogen Mission
19	Gopal Kulkarni	Thermodynamics
21	Dr. Mahesh Bhat	The safety hazards in the laboratory
22	Keerthi	Chemical safety and environment
23	Dr. Gourisankar Roymahapatra	National green hydrogen mission
24	Dr. S. Angayarkanny	Learning chemistry through computers
25	Dr. Vandana Agrawal	The future of net zero
26	Dr. Ranga Swamy J	Chemical safety and environment
28	Mukesh Kumar Patel	Chemical safety and environment
29	Dr. Awanish Kumar Patel	Chemical safety and environment
30	Rakesh Madhukarrao Naktode	Undergraduate research program
31	Sandeep Kumar Kushwaha	Recent trends in Chemistry
32	Suparna	The safety hazards in the laboratory
33	Neelam Ram Dhansay	National green hydrogen mission
34	Dr. Amit Rajput	Safety hazards in the laboratory



DAY 8, 03-08-2023

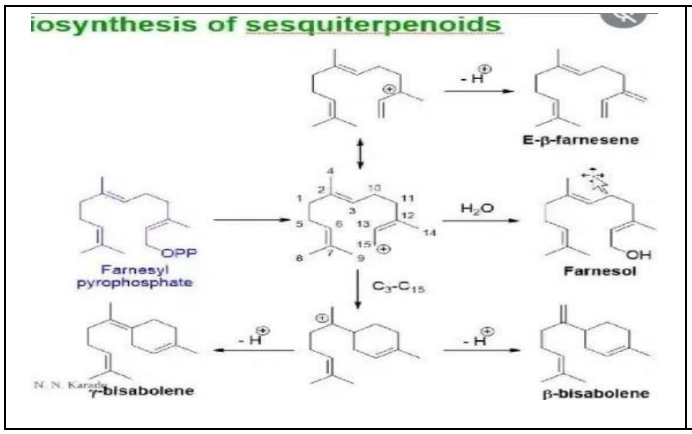
03-08-2023: First Session 10:30 AM to 12:00 Noon

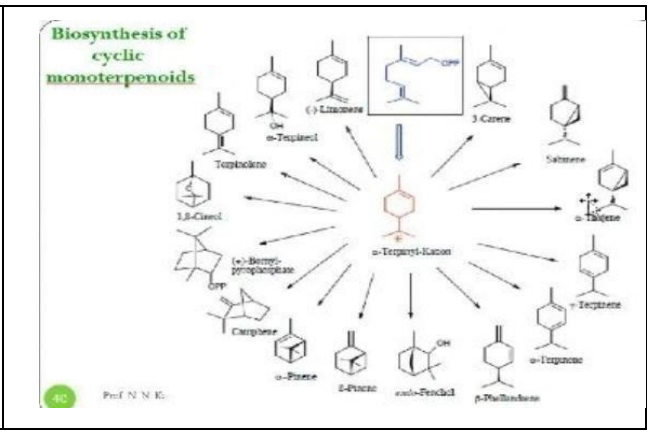
Dr. Nandkishore Karade

Department of Chemistry, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

Biosynthesis of Terpenes andTerpenoids.

Prof. Karade explained the fundamental concepts of Terpenes and Terpenoids, Classification, Isoprene rules and their biosynthesis process.





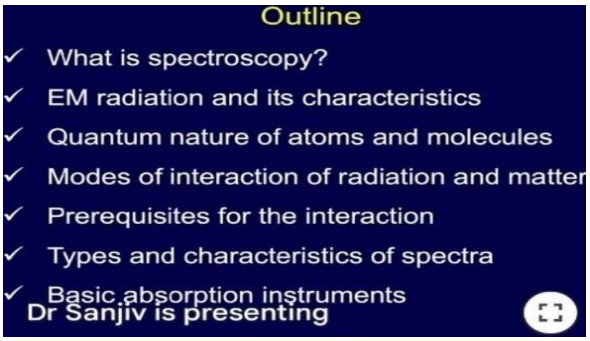
03-08-2023: Second Session 12:15 PM to 01:45 PM

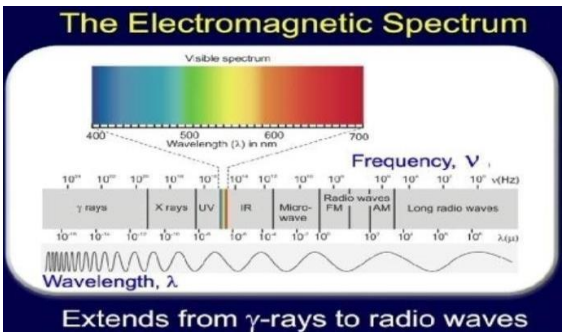
Prof. Sanjiv Kumar

School of Science, IGNOU, New Delhi

Spectroscopy-an overview

In this lecture Prof. Sanjiv Kumar explained about the spectroscopy, Type and character of E.M.R, Type of Spectrum, Type of Energy and characteristics of spectrum etc.





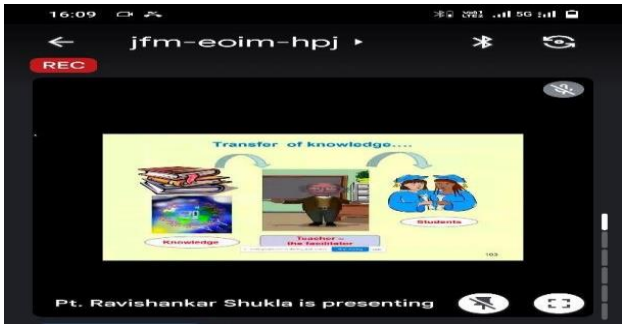
03-08-2023: Third Session 02:15 PM to 03:45 PM

Prof. Anand Aswar

Department of Chemistry, SBG Amravati University, Amravati

Imperfection in Solid

Prof. Aswar explained detail about imperfection in solids. In this lecture he explained the types of imperfection, various kind of defects such us Shotkey, Frankel , Metal deficiency etc. He also discussed about education is not information, it is a process of transformation.



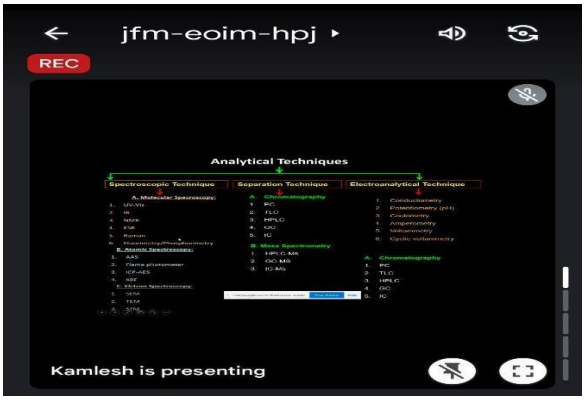
03-08-2023: Forth Session 02:15 PM to 03:45 PM

Prof. Kamlesh Shrivas

School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.)

Surface and Materials Characterization Techniques

Prof. Shrivas. He explained about the surface science and Materials characterization Techniques. He also briefed about spectroscopic, separation and electroanalytical techniques for determining the character of materials. He also covered extensively the principle, theory and instrumentation involving for surface and material characterization techniques. Further, he explained the electron diffraction on a lattice.



DAY 9, 04-08-2023

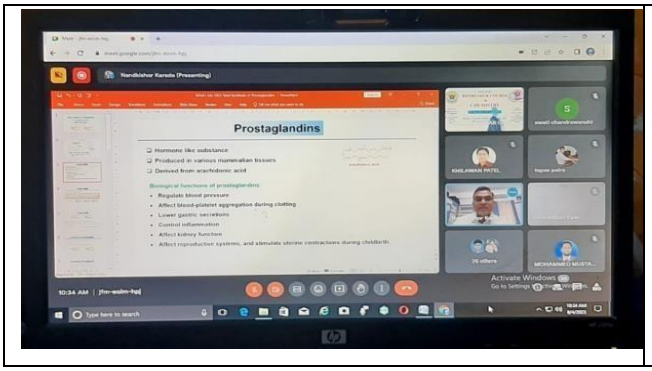
04-08-2023: First Session 10:30 AM to 12:00 Noon

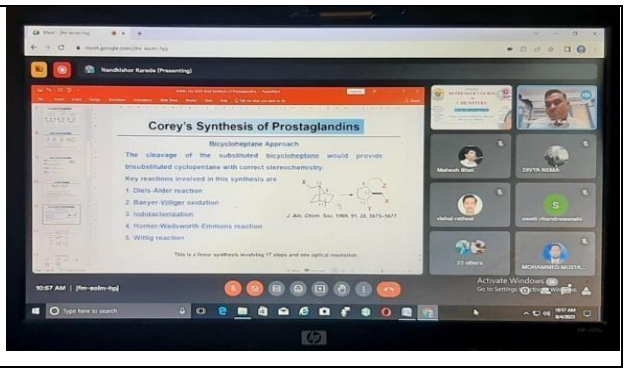
Prof. Nandkishor N. Karade

Department of Chemistry, RTM Nagpur University, Nagpur.

Total synthesis of prostaglandins

Prof. Karade has clearly explained various organic mechanisms suchas Diels-Alder reation, Baeyer Villiger reaction, Wittig reaction, etc. He has covered metallo biomolecules, biological roles of metallic elements in terms of structural and charge neutralization. He cleared the concept of the title and enhanced our knowledge.





04-08-2023: Second Session 12:15 PM to 01:45 PM

In this session 11 participants presented their research projects. The objective, methodology and importance of the project have been discussed. The project were evaluated by Prof. Manas Kanti Deb. He has given important suggestion to improve the Project proposal.

S.N.	Name	Title
1	Dr. Madhurani Shukla	Chemical analysis of different brands of soft drinks
2	Mr. Vishal Thawara Rathod	Electrochemical/Colorimetric sensor and catalysis
3	Dr. Swati Chandrawanshi	Application of nanoparticles in determination of heavy metals.
4	Dr. N. Mohammad Basith	Copper oxide and zinc oxide nanostructures for environmental remediation - ealthcare applications.
5	Dr. K. Mohammad Mustaque	Amino Acid Catalyzed Synthesis of 2,3-Dihydroquinazolin-4(1H)-one Derivatives and its
6	Mrs Anita Patel	biological applications.
7	Lata Bhoi	Adulterants in food stuffs
8	Dr. Tapas Kumar Paira	Synthesis of peptide-polymer and their self-assembly.
9	Dr. Mamta Saraf	Chemical properties of water from different sources
10	Dr. Divya Nema	Properties of drinking water from different sources
11	Dr. Goverdhan Vyas	Ceramic Based Catalysts for Biodiesel Production

03-08-2023: Third Session 02:15 PM to 03:45 PM

Prof. Shamsh Pervez

School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.)

New approaches in air quality monitoring and assessment of chemical pollutants

Prof. Pervez explained in detail about the new approaches in air quality monitoring and assessment of chemical pollutants. In this lecture he explained the estimated deaths by pollution risk factor and mortality due to COVID-19 maximum for 50(+) age groups. He also elaborated the effect of air pollution on Himalayan Snow Covers and discussed about how the carbon content emission decreased during COVID-19.

04-08-2023: Forth Session 02:15 PM to 03:45 PM

In this Session 12 participants presented on different topics. Prof. Manas K. Deb evaluated the projects

S. No.	Name	Topic
1.	Dr. Pratik Kumar Jagtap	Microextraction coupled with chromatographic analysis for antidepressant drugs
2.	Priti Khursail	Green Synthesis of copper nanoparticles
3.	Khemchand Dewangan	Machine-learning-Guided DFT-Based Nanosensors for Environmental Remediation
4.	Dr. Deepak Kumar Pandey	Study of pesticide in food and soil by various method
5.	Dileep Dewangan	Analysis the Physicochemical Parameters of Pond Water
6.	Khilawan Patel	Uranium removal study by functionalized graphene oxide chitosan composites in aqueous samples
7.	Gopal Kulkarni	Study of adsorption equilibria on the low cost adsorbent

8.	Dr. Ranga Swamy	Synthesis of aminoacids/peptides conjugated benzofurans by using nano metal oxides as catalyst: A new class of biological agents
9.	Dr. Mahesh Bhat	Photocatalytic degradation of organic molecules in water purification
10.	Keerthi	Integrated membrane bioreactor for waste water treatment
11.	Dr. Gourisankar Roymahapatra	Chloro-fluorophenyl-acrylaldehyde derivatives ans super alkali nature; *in-slico* study
12.	Dr. S. Angayarkanny	Development and assessment of poly L-lactide/cellulose composite for scaffold for wound healing

DAY 10, 07-08-2023

07-08-2023: First Session 10:30 AM to 12:00 Noon

Prof. Bhisma K. Patel

Department of Chemistry, IIT, Guwahati.

Emerging facets of nitrogen centered radical

Prof. Patel has clearly explained the free radical, mechanism of antioxidant, mechanism of many nitrogen heterocyclic compound. The energy profile diagram and emerging facets of nitrogen centered radical was also discussed in details. He cleared the concept of the title and enhanced our knowledge.

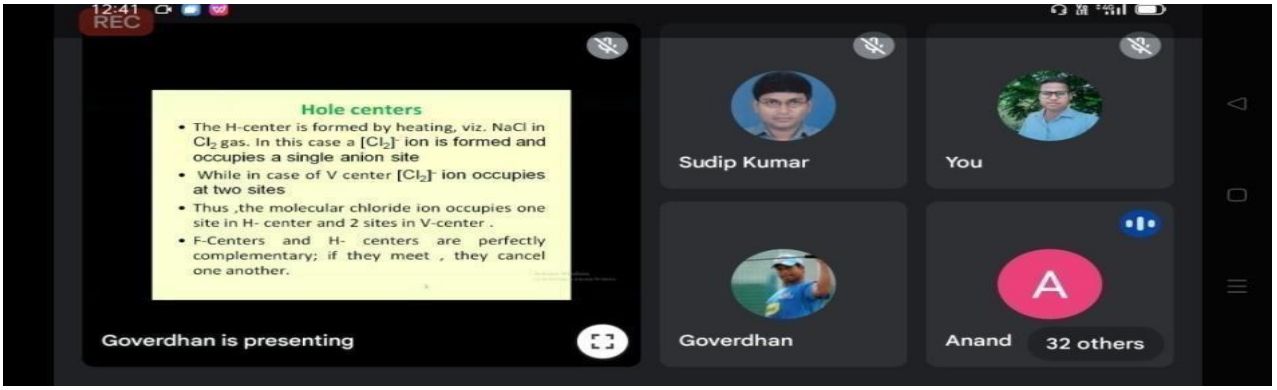
07-08-2023: Second Session 12:15 PM to 01:45 PM

Prof. Anand Aswar

Department of Chemistry, SBG Amravati University, Amravati

Imperfections in solids Part II, dislocations

Prof. Aswar has discussed on imperfections in solids Part II, dislocations, various diagram of edge and skew dislocation in solid state chemistry, F center, V- center Cl_2^{-1}, Hole center, mechanism offractures in metal, etc.



07-08-2023: Third Session 02:15 PM to 03:45 PM

Dr. Manas Kanti Deb

School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur, CG.

Following Participants have present their project. Prof. M. K. Deb reviewed their project

S.N.	Name	Project Title
14	Dr. Sudip Kumar De	Early Transition Metal Catalysed Aqueous Polymerization
25	Dr, Vandana Agrawal	
26	Dr. Ranga Swamy J	Synthesis of amino acid/peptides conjugated benzofurans by using nano metal oxides as catalyst: A new class of biological agents
27	Mr. Mukesh Kumar Patel	Chemistry on Covid 19
28	Dr. Awnish Kumar Patel	Nitrogen Analysis in chemical fertilizer
29	Rakesh Madhukarrao Naktode	Study of heavy metal- ions from aqueous solution in industry west water from hybrid precursor made from Rice Husk
30	Sandeep Kumar Kushwaha	Removal of Cr(VI)from water Using NiO-Uf
31	Suparana	Environmental Health impact of bauxite Mining
32	Neelam Ram Dhansay	Study of composite material
33	Dr. Amit Rajput	Photochemical smog Formation and Its Impact

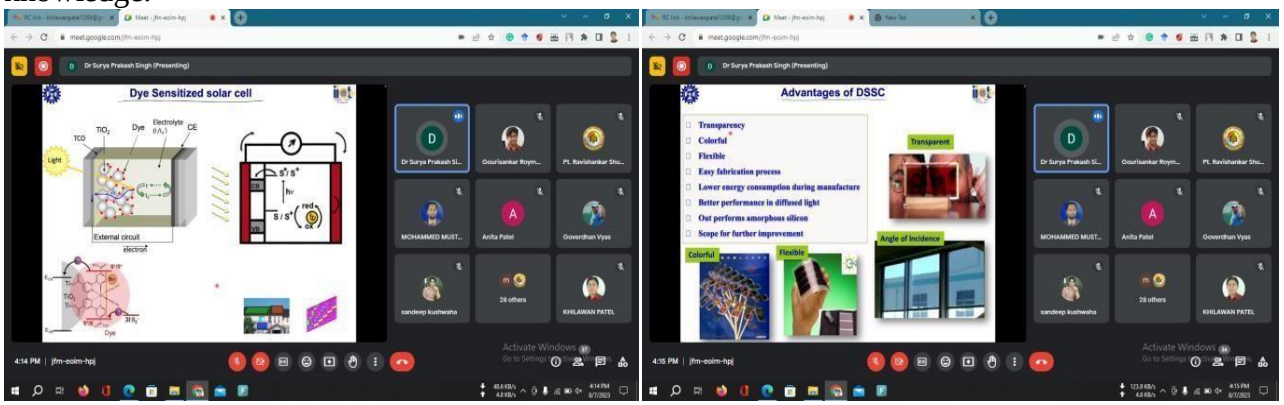
07-08-2023: Forth Session 02:15 PM to 03:45 PM

Prof. Surya Prakash Singh

Department of Polymers and Functional Materials, CSIR-Indian Institute of ChemicalTechnology, Hyderabad.

Translational Research on Light Harvesters for Photonic Devices: From Structure to Function

Prof. Singh has clearly explained about sustainable development, Avantages of DSSC development, Component such as TiO_2, Dye, Electrolytes, Dye for transparent DSSC, Application of LED, Colloidal synthesis of $CsPbX_3$, Pervoskite solar cell, Hole transport materials, Application of indoor PV, and Photochromic material application. He cleared the concept of the title and enhanced our knowledge.



ONLINE REFRESHER COURSE IN CHEMISTRY
(24/07/20213 TO 11/08/2023)

DAY 11 ,08 -08 -2023

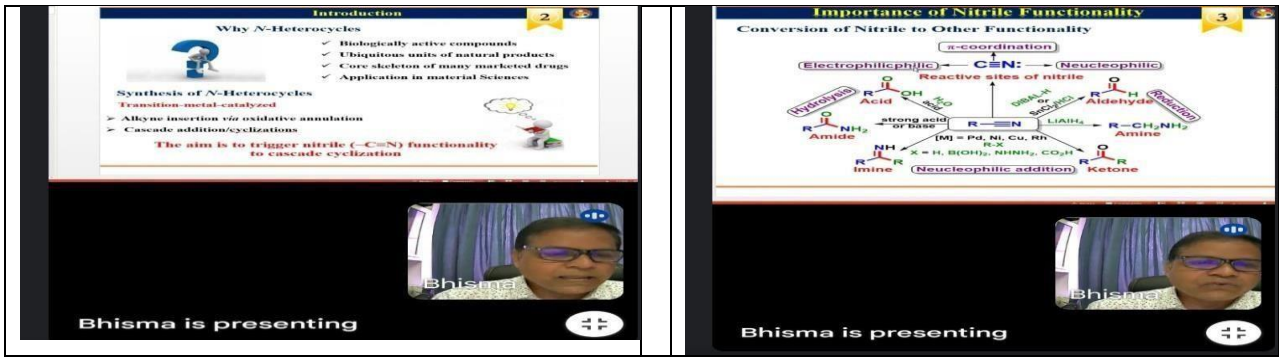
08-08-2023: First Session 10:30 AM to 12:00 Noon

Prof. Bhisma K Patel

Department of Chemistry, IIT Guwahati, Assam

Nitrile as precursors to heterocycles

Prof. Patel discussed about **Nitrile as precursors to heterocycles**. The nature of nitrile isa flexible precursor to other groups such as amine, amide, ketone etc. The nitrile-triggered reaction have gained immense importance in serving as acceptors was narrated by the speaker. Inaddition to the content the examples he gave was excellent and interesting and made the content very clear. He explained the Electron donor acceptor complex (EDA Complex) in very interesting way. Conversion of Nitrile to other functionality explained was really interesting. Thespeaker also asked many questions and made the session very lively. The participants also actively answered the questions and impressed the speaker. As a whole a full-fledged lecture by Prof. Bhisma K. Patel was a perfect blend of Teaching and Research.



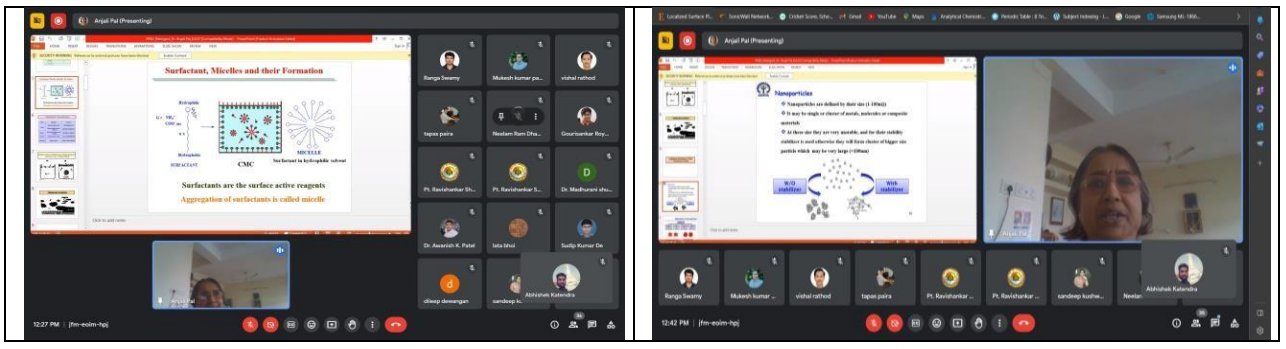
08-08-2023: Second Session 12:15 PM to 01:45 PM

Prof. Anjali Pal

Department of Civil Engineering, IIT. Kharagpur

Soap, Detergent and Micelle- Their application in chemistry

Prof. Anjali Pal started his presentation with -what is soap, detergent and micelle. She has given number of examples on their application in chemistry. The lecture was a perfect example of how a literature survey is to be done. The speaker narrated the findings along with some interesting incidents which made us to appreciate the research work of the speaker. The lecture made us to understand how Soap, Detergent and Micelle- useful and applicable with respect to chemistry. She also explained why and how detergent surfactant are superior to cleaning solutions since they are unaffected by water hardness and explain about micelle in very easy way. She also explained why Soaps are biodegradable while some of the detergents can not be biodegraded. As a whole it was a very impressive presentation.



08-08-2023: Third Session 02:15 PM to 03:45 PM

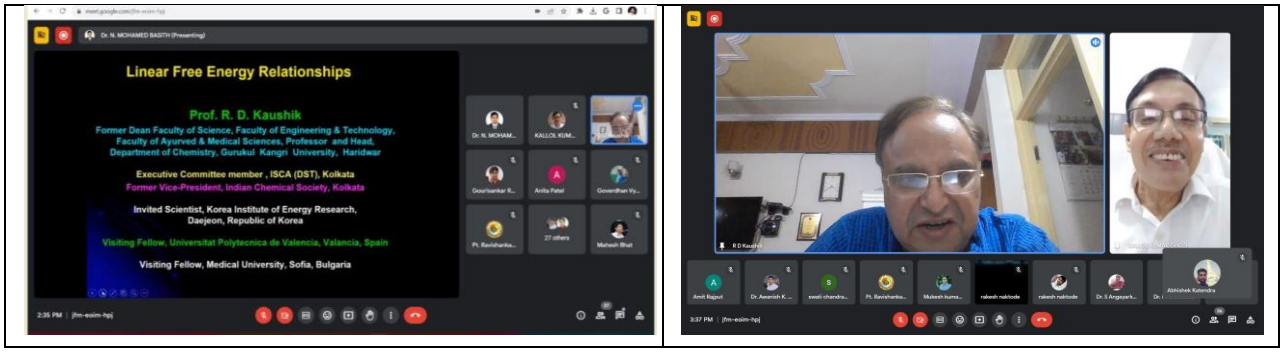
Prof. R.D. Kaushik

Department of Chemistry, Gurukul Kangri University, Haridwar-249404 (Uttarakhand)

Linear Free Energy Relationship

Prof. Kaushik, discussed about chemical kinetics, the kinematics and dynamics. The interrelation was explained in an impressive and clear manner. He has taken the ionic and free radical mechanism

of dissociation of benzoic acid was explained using Hammatt and Taft equations. He also derived the sigma and rho values sequentially in a simplified manner. The lecture was very clear and impressive, the key point impressive about the session is the explanation given by him on the linearity of the graph and how it was influenced by resonance. The participants interacted very well.



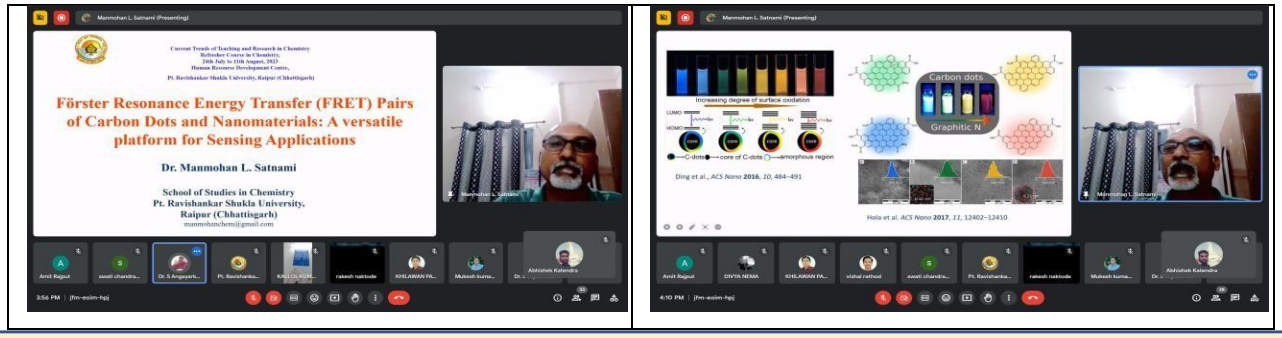
08-08-2023: Forth Session 02:15 PM to 03:45 PM

Dr. Manmohan L. Satnami

School of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.).

Förster Resonance Energy Transfer (FRET) Pairs of Carbon Dots and Nanomaterials: A versatile platform for Sensing Application

Dr. Satnami started his presentation with Jablonski diagram. He explained the basic concepts on fluorescence. Then he moved to the very impressive work on gold nanoparticle sensing behaviors and characterization of the same with fluorescence spectroscopy. He also impressively showed proofs and concepts for the interaction of carbon quantum dots with gold nanoparticles. He made the concepts very clear with crystal clear proofs. The very impressive part of his lecture is that he projected the research scholars along with their contribution in research. This research work was greatly appreciated by the all the participants as many of the participants are working in the field of nano materials.



DAY 12, 10-08-2023

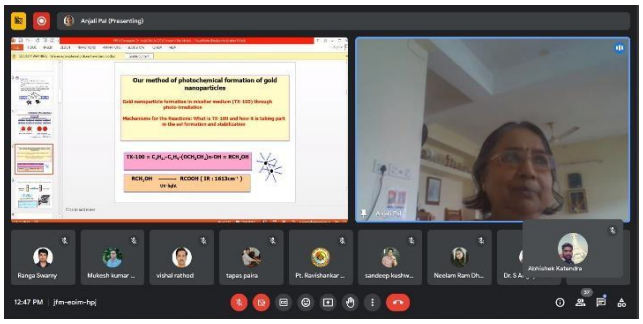
10-08-2023: First Session 10:30 AM to 12:00 Noon

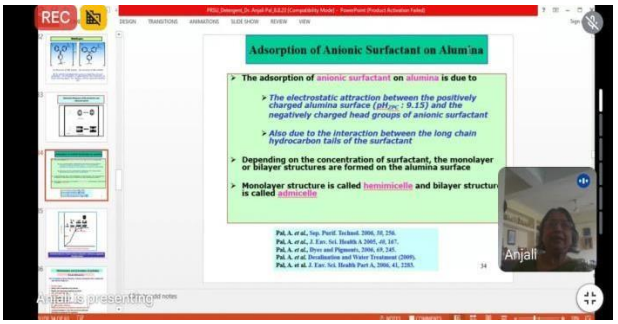
Prof. Anjali Pal

Department of Civil Engineering, IIT. Kharagpur

Soap, Detergent and Micelle- Their application inchemistry Dyes

Prof. Pal started his presentation with -what is dyes, and its types. She has explained the harmful effect of dyes and its derivative in environment. She also explained the various source ofdyes and its harmful effect in human being. She was explained the dyes removal method in various source by micelle formation methods. She also presents the absorbance technique of dyesby alumina and surfactant-based micelle bed for removal of dyes and organic materials in water. She also interact the participant for their quires related to application of removal method in industrial area and pesticides removal. Prof. Pal also emphasized on the need for the joined research of chemist and a biologist for fruitful outcomes. The participants showed great interest in the presentation by the way of asking information and doubts on the topic.





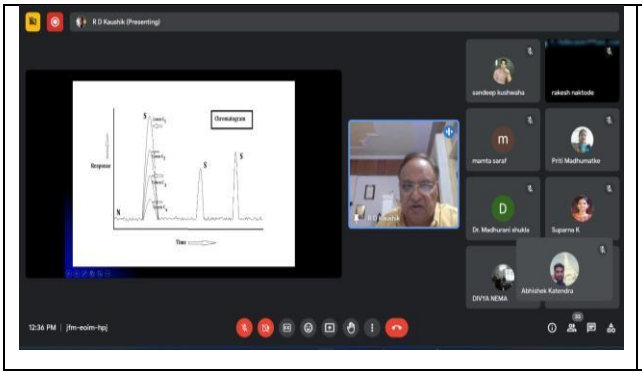
10-08-2023: Second Session 12:15 PM to 01:45 PM

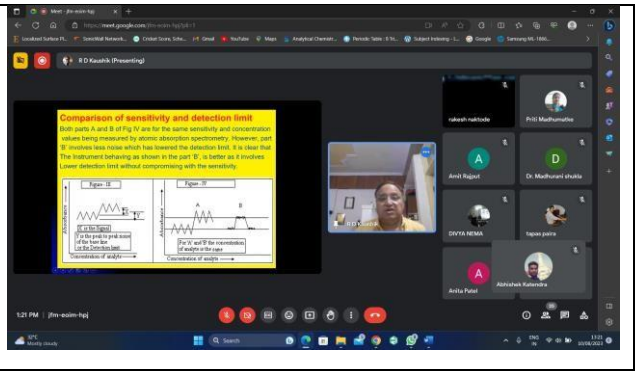
Prof. R.D. Kaushik

Department of Chemistry, Gurukul Kangri University, Haridwar-249404 (Uttarakhand)

Linear Free Energy Relationship

Prof. Kaushik discussed about **"**Linear Free Energy Relationship". He explained the absorption spectra, signal and noise level in this session. He was also explained the sensitivity, calibration curve and constrictive method for testing in spectroscopy. The Lambert bear law and graph of spectroscopy was clearly explained by the expert in this session. Detection limit, its important and source of noise define by the expert. The classification of noise and its detection method were also discussed with us. The speaker also asked many questions and made the session very lively. The participants also actively answered the questionsand impressed the speaker. As a whole a full-fledged lecture by Prof. R. D. Kausik was a perfect blend of Teaching and Research.



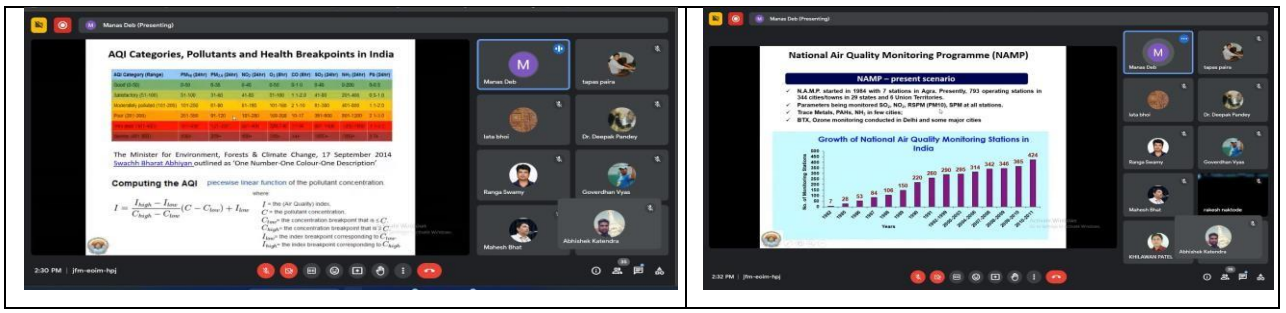


10-08-2023: Third Session 02:15 PM to 03:45 PM

Prof. Manas K. Deb

SoS in Chemistry, Pt. Ravishankar Shukla University Raipur (C.G.)

Prof. Deb has meticulously elucidated all facets encompassing ambient air quality, delving into their respective criteria with profound insight. Moreover, his discourse has encompassed a comprehensive exploration of the myriad methodologies employed in the examination of air quality. Among these techniques, the Flame Ionization Detector stands prominently, offering a means to discern minute traces of various constituents. Equally noteworthy is the Nitrogen Phosphorus Detector, enabling the discernment of nitrogen and phosphorus compounds with impressive precision. Furthermore, his exposition has gracefully encompassed the, a sophisticated method that enables the identification and quantification of diverse chemical species within the air matrix. In sum, his exposition exudes a remarkable elegance, serving as a beacon of erudition in the realm of ambient air quality analysis.



10-08-2023: Forth Session 02:15 PM to 03:45 PM

Subsequently, an online examination was administered, overseen by Dr. K. K. Ghosh and Dr. Brijendra Pandey. The examination comprised 30 multiple-choice questions presented to the participants. A span of 40 minutes, commenced at 4:05 pm and concluded at 4:45 pm, was allotted for addressing the questions.

DAY 12, 11-08-2023

VALIDICTORY SESSION

The Valedictory Session of the Online Refresher Course in Chemistry on Current Trends of Teaching and Research in Chemistry commenced at 11:00 am in the gracious presence of Prof. Sachchidanand Shukla, Hon. Vice-Chancellor, Pt. Ravishankar Shukla University , Prof. Preethi K Suresh, Director, HRDC, PRSU, Prof. Kallol K Ghosh, Course coordinator, Dr Brijendra Pandey, Asst. Director, HRDC, PRSU and other respected dignitaries & eminent participants.

The session began with a warm welcome extended by Dr. Brijendra Pandey to all the dignitaries, the Course coordinator, and the participants. Following this, Prof. Kallol K Ghosh presented a

comprehensive report on the course, highlighting its key aspects and achievements. Participants share their feedback and experience throughout the session.

Prof. Preethi K Suresh, the Director of HRDC, PRSU, provided an overview of the refresher course and congratulated the participants on their successful completion of the program.

The Honourable Vice Chancellor of Pt. Ravishankar Shukla University then delivered a presidential remark, offering his words of encouragement and well-wishes to all the participants. The event concluded on a note of gratitude, with Dr. Brijendra Pandey extending a vote of thanks to all those involved in making the refresher course and its valedictory session a success.