



Indian Academy
of Sciences,
Bangalore



Indian National
Science Academy,
New Delhi



The National Academy
of Sciences, India
Allahabad

Science Academies' Refresher Course on

Fundamentals and Applications of Chemistry in Material and Biological Sciences: Recent Trends

Organized by



Surendranath College, Kolkata

Venue : Auditorium, *Surendranath College*

Programme Schedule (January 02 to January 17, 2019)

January 02, 2019 (Wednesday)

Registration: 9.30 am - 9.45 am

Inaugural Function: 9.45 am - 10.30 am

Welcome Address: Dr. Indranil Kar, Principal, Surendranath College, Kolkata

Inaugural & Convener's Address: Prof. Ashutosh Ghosh, Course Director, University of Calcutta

Tea Break: 10.30 -10.45 am

Lecture 01: 10.45 am - 12.00pm: Electro Chemical Analysis: Fundamentals and Applications-I
Prof. A. Ghosh, University of Calcutta, Kolkata

Lecture 02: 12.00 am-13.15 pm: Electro Chemical Analysis: Fundamentals and Applications-II
Prof. A. Ghosh, University of Calcutta, Kolkata

LUNCH: 13.15 pm -14.00 pm

Lecture 03: 14.00 pm -15.15pm: Green Tools for Chemical Transformations
Prof. B. C. Ranu, IACS Kolkata

Lecture 04: 15.15 pm - 16.30 pm: Green Concepts in Metal Catalysis
Prof. B. C. Ranu, IACS Kolkata

January 03, 2019 (Thursday)

Lecture 05: 10.00 am -11.15 am: Fundamental Aspects of Luminescent Nanomaterials & their Functionality
Prof. A. Patra, IACS Kolkata

Lecture 06: 11.15 am -12.30 pm: Photon Harvesting in Nanosystems
Prof. A. Patra, IACS Kolkata

LUNCH: 12.30 pm -13.15 pm

Library Works

January 04, 2019 (Friday)

Lecture 07: 10.00 am. -11.15 am: Photoelectron Spectroscopy: Fundamentals and Applications-I
Prof. A. Ghosh, University of Calcutta, Kolkata

Lecture 08: 11.15 am -12.30 pm: * Photoelectron Spectroscopy: Fundamentals and Applications-II
Prof. A. Ghosh, University of Calcutta, Kolkata

LUNCH: 12.30 pm -13.15 pm

- Lecture 09:** 13:15 pm- 14.30 pm: Biomolecules, Interactions & Function
Prof. A. Chakraborty, SINP, Kolkata
- Lecture 10:** 14.30 pm- 15.45 pm: Macromolecular Interactions & Chemical Biology
Prof. A. Chakraborty, SINP, Kolkata
- Lecture 11:** 15.45 pm- 17.00 pm: * Library Works *

January 05, 2019 (Saturday)

- Lecture 12:** 10.00 am. -11.15 am: Lubricants: The role of functional materials-I
Prof. P. Ghosh, NBU
- Lecture 13:** 11.15 am -12.30 pm: Lubricants: The role of functional materials-II
Prof. P. Ghosh, NBU
- Lecture 14:** 12.30 pm- 13.30 pm: Natural product chemistry: a greener way of development-I
Prof. P. Ghosh, NBU

LUNCH: 13.30 pm -14.30 pm

- Lecture 15:** 14.30 pm- 15.45 pm: Catalysis with micelles
Prof. T. Pal, IIT Kharagpur
- Lecture 16:** 15.45 pm- 17.00 pm: Nucleation, growth and stabilization of metal nanoparticles in solution
Prof. T. Pal, IIT Kharagpur

January 07, 2019 (Monday)

- Lecture 17:** 10.00 am. -11.15 am: Common mistakes for chemistry manipulation
Prof. T. Pal, IIT Kharagpur
- Lecture 18:** 11.15 am -12.30 pm: Redox reaction involving metals
Prof. T. Pal, IIT Kharagpur

LUNCH: 12.30 pm -13.15 pm

- Lecture 19:** 13.15 pm- 14.30 pm: Probing the Mechanism of Oxidation Reactions-I
Prof. T.K Paine, IACS, Kolkata
- Lecture 20:** 14.30 pm- 15.45 pm: Probing the Mechanism of Oxidation Reactions-II
Prof. T.K Paine, IACS, Kolkata
- Lecture 21:** 15.45 pm- 17.00 pm: Introduction to Crystals
Prof. C.M. Reddy, IISER Kolkata

January 08, 2019 (Tuesday)

- Lecture 22:** 10.00 am. -11.15 am: Crystal Engineering: Design of Organic Structures
Prof. C.M. Reddy, IISER Kolkata
- Lecture 23:** 11.15 am -12.30 pm: Crystal Engineering: Design of Properties
Prof. C.M. Reddy, IISER Kolkata

LUNCH: 12.30 pm -13.15 pm

- Lecture 24:** 13.15 pm- 14.30 pm: Metals in Biology
Prof. T.K. Paine, IACS, Kolkata
- Lecture 25:** 14.30 pm- 15.45 pm: Biological Oxidations-I
Prof. T. K Paine, IACS, Kolkata
- Lecture 26:** 15.45 pm- 17.00 pm: Biological Oxidations-II
Prof. T.K Paine, IACS, Kolkata

January 09, 2019 (Wednesday)

Lecture 27: 10.00 am- 11.15 am: Surface enhanced Raman scattering (SERS) for single molecule detection
Prof. T. Pal, IIT Kharagpur

Lecture 28: 11.15 pm- 12.30 pm: Sub-nano meter metal particles without plasmon absorption
Prof. T. Pal, IIT Kharagpur

LUNCH: 12.30 pm -13.15 pm

Lecture 29-32: 13.15 pm- 5.00 pm: An instrumentation session

January 10, 2019 (Thursday)

Lecture 33: 10.00 am. -11.15 am: Lanthanides: General properties and Potential as Magnetic Materials-I
Prof. A. Ghosh, CU

Lecture 34: 11.15 am -12.30 pm: Lanthanides: General properties and Potential as Magnetic Materials-II
Prof. A. Ghosh, CU

LUNCH: 12.30 pm -13.15 pm

Lecture 35: 13.15 pm- 14.30 pm: Learning science is easy if attitude is proper
Prof. N. Chattopadhyay, Jadavpur University, Kolkata

Lecture 36: 14.30 pm- 15.45 pm: Spectroscopy and photochemistry: Fundamentals and Applications
Prof. N. Chattopadhyay, Jadavpur University, Kolkata

Lecture 37: 15.45 pm- 17.00 pm: Computational Works

January 11, 2019 (Friday)

Lecture 38: 10.00 am. -11.15 am: Development of potential strategies from simple ideas
Prof. N. Chattopadhyay, Jadavpur University, Kolkata

Lecture 39: 11.15 am -12.30 pm: Strategies for effective delivery of drugs to targets
Prof. N. Chattopadhyay, Jadavpur University, Kolkata

LUNCH: 12.30 pm -13.15 pm

Lecture 40: 13.15 pm- 14.30 pm: Redox Reactions
Prof. T.K. Paine, IACS, Kolkata

Lecture 41: 14.30 pm- 15.45 pm: Development of Coordination Chemistry and Its Implications
Prof. T.K. Paine, IACS, Kolkata

Lecture 42: 15.45 pm- 17.00 pm: Library Works

January 14, 2019 (Monday)

Academic Excursion

January 15, 2019 (Tuesday)

Lecture 43: 10.00 am. -11.15 am: Excretion of excess drugs from the body
Prof. N. Chattopadhyay, Jadavpur University, Kolkata

Lecture 44: 11.15 am -12.30 pm: Open discussion and interactions
Prof. N. Chattopadhyay, Jadavpur University, Kolkata

LUNCH: 12.30 pm -13.15 pm

Lecture 45: 13.15 pm- 14.30 pm: Spectroscopy: Fundamentals & Applications-I
Prof. Anunay Samanta, UoH

Lecture 46: 14.30 pm- 15.45 pm: Spectroscopy: Fundamentals & Applications-II

Prof. Anunay Samanta, UoH

Lecture 47: 15.45 pm- 17.00 pm: Spectroscopy: Fundamentals & Applications-III

Prof. Anunay Samanta, UoH

January 16, 2019 (Wednesday)

Lecture 48: 10.00 am. -11.15 am: Spectroscopy: Fundamentals & Applications-IV

Prof. Anunay Samanta, UoH

Lecture 49: 11.15 am -12.30 pm: Spectroscopy: Fundamentals & Applications-V

Prof. Anunay Samanta, UoH

LUNCH: 12.30 pm -13.15 pm

Lecture 50-51: 13.15 pm- 14.30 pm: Library works

January 17, 2019 (Thursday)

10.00 am. -13.00 pm:

Cultural Programme

Lunch

14.00 pm -15.30 pm:

Certificate Distribution

Valediction & Vote of Thanks

Science Academies' Refresher Course on "Fundamentals and Applications of Chemistry in Material and Biological Sciences: Recent Trends"

Organized by
Department of Chemistry, Surendranath College, Kolkata
02-17 January 2019

Program Completion Report

The two weeks Refresher Course program entitled "*Fundamentals and Applications of Chemistry in Material and Biological Sciences: Recent Trends*" organized by Surendranath College, Kolkata and sponsored and supported jointly by the three National Science Academies – Indian Academy of Sciences (Bangalore), Indian National Science Academy (New Delhi) and The National Academy of Sciences, India (Allahabad) has been successfully accomplished during 2nd to 17th January, 2019 at the Auditorium and Chemistry Gallery of the College. The actual number of candidates applied for the course is 67; while total number of participants was 24. Total number of Resource Persons was 15.

Names of the Resource persons:

1. Prof. Anunay Samanta, University of Hyderabad, FNA, FASc, FNASc
2. Prof. Ashutosh Ghosh, University of Calcutta, FASc
3. Prof. Nitin Chattopadhyay, Jadavpur University, FASc, FNASc
4. Prof. Amitava Patra, IACS Kolkata, FASc, FNASc
5. Prof. B.C. Ranu, IACS Kolkata, FASc, FNA
6. Prof. Abhijit Chakraborty, SINP, Kolkata
7. Prof. Tarasankar Pal, IIT Kharagpur, FNASc
8. Prof. Pranab Ghosh, University of North Bengal
9. Prof. T. K. Paine, IACS Kolkata
10. Prof. C.M. Reddy, IISER Kolkata
11. Prof. Rahul Banerjee, IISER Kolkata
12. Prof. Maitrayee DasGupta, University of Calcutta, FNASc
13. Prof. Dhrubajyoti Chattopadhyay, Amity University, Kolkata
14. Dr. Indranil Kar, Principal, Surendranath College
15. Dr. Nilansu Das, Surendranath College, Kolkata

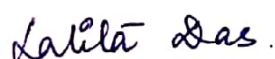
On 2nd January, 2019, 10.00 a.m., the Refresher Course was inaugurated through a brief function. After the welcome address by Dr. Indranil Kar, Principal of this host Institution, Prof. Ashutosh Ghosh of University of Calcutta, Kolkata and Director of this course inaugurated the Refresher Course. He addressed the participants as Director and discussed about different activities of the three National Academies and elaborated the aims and objective of such education programmes in our society. He encouraged the participants for maximum interaction with the resource persons to maximize the full benefits of such programs. In the first two lectures of the pre-lunch session Prof. Ashutosh Ghosh overwhelmed the participants by his fascinating deliberation on impact of electro-chemical methods and their applications in the development of advance materials. In the post-lunch lectures Prof. B.C. Ranu of I.A.C.S. Kolkata introduced the fundamentals of Green Chemistry for different chemical transformations of industrial significance. In the next day, Prof. A. Patra of IACS Kolkata exhibited the importance aspects of Luminescence Nanomaterials in designing advance functional materials while Prof. N. Mahato of S.K.B. University demonstrated the role of H-bonding in Biology in a splendid way. In third day, Prof. A. Ghosh dealt with the basics of Photoelectron Spectroscopy and its wide application in Material Science. On the other hand, Prof. Abhijit Chakraborty of SINP, Kolkata shared the Chemistry in Biomolecules and their important functions in living system. In the 4th day, Prof. Pranab Ghosh of North Bengal University made an elaborate introduction with Lubricants. He, further, extended the session through valuable discussion about natural product Chemistry and its importance. After lunch session, Prof. T. Pal of IIT Kharagpur refreshed the participants by his erudite presentations on micelle catalysis and stabilization of metal nanoparticles in solution. Prof. T. Pal on 07th January 2019 created a huge appeal among the participants

through his discussion on common mistakes in Chemistry and redox reactions. In the post-lunch session, Prof. T.K. Paine of IACS Kolkata inspired the participants by his deliberation on oxidations reactions in Bioinorganic Chemistry. On the same day, Prof. C.M. Reddy of IISER Kolkata introduced the significance of Crystals to Material Science.

On 08th January 2019, in the pre-lunch session, Prof. C.M. extended the properties and design of organic structures to the participants. In the post-lunch session, Prof. T.K. Paine discussed the fundamentals of metal ions in Biology including biological oxidation reactions. In the morning of 9th January, Prof. Nilansu Das described the effect of Arsenic contaminated ground water in India & Bangladesh. Then, an instrumentation session was conducted in IACS Kolkata under the supervision of Prof. Amitava Patra of IACS Kolkata. On 10th January, Prof. N. Chattopadhyay overwhelmed the participants with his deliberation on Learning Science and spectroscopy including photochemistry. In the next day, Prof. Maitrayee Das Gupta explained the role of nitrogen in basic processes of Nature while Prof. Rahul Banerjee addressed the significance of metal organic frameworks in designing advance functional materials. While on the same day Prof. N. Chattopadhyay delivered on development of potential strategies from simple ideas on 11th January 2019. On 14th January 2019, Academic Excursion was conducted based on Victoria Memorial, Science City and Nicco Park. On 15th January Prof. Anunay Samanta of University of Hyderabad created an electric atmosphere by introducing the fundamentals of Single Molecule Spectroscopy. While Prof. Dhrubajyoti Chattopadhyay of Amity University enlightened on different enzymatic functions in nature. Lastly, on 16th January, Dr. Indranil Kar introduced the adverse effect of malaria for future civilizations. On 17th January 2019, at the valedictory session all the participants and Director of the Refresher Course discussed on the positive outcomes of the program and shared their feelings with experiences of the days. Finally the program was concluded after cordial vote of thanks by Dr. Bhaskar Biswas, Coordinator of this Refresher Course.



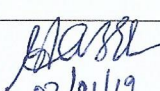
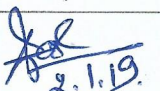
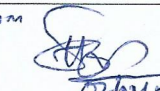



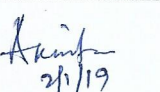
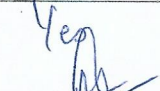
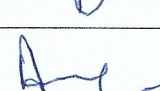
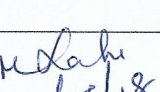
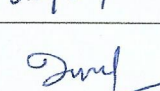
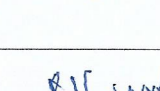
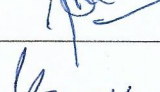
Principal
Surendranath College
Kolkata-700009



Head of the Department
Department of Chemistry
Surendranath College, Kol - 9

Application ID	Name	Postal Address	Email & Phone no	Registration kits received
ASUT22	USHRI ROY BHAIRAB GANGULY COLLEGE BELGHARIA	Department of Zoology, Bhairab Ganguly College, Belgharia -	ushri_2007@yahoo.com	Ushri 02/01/19
ASUT25	DR. SUBHRA KANTI MANDAL GORUBATHAN GOVERNMENT COLLEGE GORUBATHAN, KALIMPONG	Gorubathan Govt. College, P.O. - Pagan, Dist - Kalimpong. Pin - 735231	subhra.wmdl@gmail.com 9477214897	Subhra 02/01/19
ASUT27	VIJAYA KISHORE KANAKARAJU university college of pharmaceutical sciences, acharya nagarjuna university guntur	A B S E N T		
ASUT28	DR. PIYA SETH Sister Nibedita Govt. General Degree College for Girls Hastings House, Alipore, Kolkata	Sister Nibedita Govt. General Degree College for Girls, Alipore, Kolkata 700027.	piyaseth22@gmail.com 9477044350	Piya 02/01/19.
ASUT29	BHASWATI BHATTACHARYA NIFTEM Haryana	NIFTEM Plot-97, Sec-56, HS 111X Ind. Estate Haryana	Bhaswati.niftem@gmail.com 9253613641	Bhaswati
ASUT30	BISWAJIT HALDER Dinabandhu Andrews College Kolkata	1237 RBE Road G1, K. Bediapur, Kolkata - 77.	bhaldaachena@gmail.com	Baldev 02/01/19.
ASUT32	DEBDEEP CHAKRABARTY Serampore College Serampore	14 S.C. Chatterjee Lane, Konnagar, Hooghly	debdeepchem@gmail.com 9434217915	Debmuk
ASUT33	HARISADHAN GHOSH Surendranath College Kolkata	HARISADHAN GHOSH VILL + POST - NRISINHA PUR DIST - BURDWAN, 713126	ghosh.harisadh@gmail.com 8617079039	Harisadhan
ASUT35	ASHOKE HAZRA A.K.P.C. Mahavidyalaya, Bengai, Hooghly, W.B	Vill - Kanpur, P.O. - Dhinakanda Dist - Hooghly, Pin - 712616.	hazra.ashoke@gmail.com	A. Hazra
ASUT36	APURBA BISWAS Surendranath College Kolkata	APURBA BISWAS Vill - Balidapur, P.O. - Beara Dist - 24 Pgs (N), Pin - 743251	apurbacu@yahoo.co.in	Apurba
ASUT37	DIBAKAR SARDAR Dinabandhu Andrews College Kolkata	Dibakar Sardar P-98 Subodh Garden Baranpuri, Kol - 70	dibakurja@yahoo.co.in	Dibakar
ASUT39	SWARUP MANNA Brahmananda Keshab Chandra College Bonhooghly, Kolkata	Vill - Gohalberia, P.O. - Bantul Dist - Howrah. Pin - 711312	smanna2007@gmail.com	Swarna 02/01/19.
ASUT41	KALPNA GUPTA R.R. Govt. (autonomous) College Alwar	A B S E N T		
ASUT43	DR. SHIRSHENDU MUKHERJEE Hooghly Mohsin College Chinsurah, Hooghly	Dept of Chemistry, Hooghly Mohsin College, Hooghly - 712105	S mukherjee@yahoo.co.in 918240133853	Shirshendu 02-1-19
ASUS10	VARALICA KHATRI	A B S E N T		

Registration Sheet

Application ID	Name	Postal Address	Email & Phone no	Registration kits received
ASUT2	GOUTAM HAZRA Kalna College Kalna, Purba-Burdwan	Dept. of Chemistry Kalna College, Kalna Purba Bardhaman	goutamhazra1@ gmail.com 8617416721	 02/01/19
ASUT4	DEBABRATA PAL SREEGOPAL BANERJEE COLLEGE, HOOGHLY	Dept. of Chemistry Sreegopal Banerjee College P.O. Magra, Dist. Hooghly PIN-712148	debu-magra @Yahoo.co.in 9433773280	 2.1.19
ASUT5	HARI SHANKAR BISWAS Surendranath College KOLKATA	Hari Shankar Biswas 14, A. Sen Road, Balaji Apartment Kot-48	harishankarbiswas@gmail.com 9874249567	 02/01/19
ASUT8	PRITHA MONDAL Surendranath College M.G. Road, Kolkata	(2A), B.R. Ambedkar - Road, Soumoley, Tentul- beria, Garua - Kot-700089	Prithagaria@gmail. com. Phone - 8335 979231	 2/01/19
ASUT9	DINESH KUMAR KANDASWAMY Central University of Tamilnadu, Thiruvavur	Dr. K. DINESH KUMAR, No 52 AERO NAGAR, AIRPORT POST, TRICHY - 620 007	dineshkumar. genetics@gmail. com	 2/01/19
ASUT11	SUBODH KUMAR Noida International University Greater Noida, Uttar Pradesh	Dr. Subodh Kumar, Dept. of Biotechnology & Microbiology Noida International University Delhi NCR	Subodh-bt-2003@ Yahoo.co.in	 2/01/19
ASUT12	MONIKA KALLUBAI Rayalaseema University Kurnool	A B S E N T		
ASUT15	DR. AMRIT KRISHNA MITRA GOVERNMENT GENERAL DEGREE COLLEGE, SINGUR	Govt General Degree College, Singur, Hooghly-712513	amrit_kmitra@ Yahoo.co.in	 2/1/19
ASUT17	MUNINDRA RUWALI Amity University Haryana, Gurgaon, Haryana Gurgaon, Haryana	Amity Institute of Biotechnology, Amity University Haryana, Gurgaon (Manesar)-122413	mumindharuwali @gmail.com 9818024870	 Yes
ASUT18	DR. ANIL KUMAR Amity University, Haryana Manesar, Gurugram	Amity Inst. of Biotech Amity Univ, Gurgaon	akumar8@gn. amity.edu 8130925418	 Anil
ASUT19	MANABENDRA SAHA Surendranath Evening College Kolkata	110/5B, Sareel Ghosh Garden Road, Kot-700031	manab_saha 2004@yahoo. co.in	 Manab 02/01/18
ASUS5	YOGESH DHASMANA DAV PG College (HNB Garhwal University Srinagar Garhwal) Dehradun	Yogesh Dhasmana C/o Ajay Kala Minar Dok Bangla, Srinagar Uttarakhand - 246174	yogeshdhasmana137 @gmail.com 9171390189	 Yogesh
ASUT20	DR. JILLY JAMES Alphonsa College, Pala Kottayam	Dr. Jilly James Dept. of chemistry Alphonsa college, Pala, Anumapuram P.O 686574	tessyjies@ yahoo.com 9497874279	 Jilly
ASUT21	URMI ROY Krishnagar Govt. College Krishnagar, Nadia	DEPT. OF BOTANY, KRISHNANAGAR GOVT. COLLEGE, KRISHNANAGAR, NADIA-741101	urmi_roy@gmail.com	 Urmi 2/1/19

Application ID	Name	Postal Address	Email & Phone no	Registration kits received
ASUT45	DR. NITISH ROY University of North Bengal NBU Campus	A B S E N T		
ASUT46	S. S RIAZ Ramakrishna mission Vidyamandira Belur math	34/1E Lower Range KOLKATA-700019	shahedeg @gmail.com	SW 2/1/19
ASUT49	SEKHAR GAIN RKM VIDYAMANDIRA HOWRAH	Dept. of Chemistry, Ramakrishna Vidyamandira, Howrah-711202	mr.sgain@ rdmri.com	Sgain 2/1/19
ASUT51	CHAITALI BARMAN RAY SURENDRANATH COLLEGE KOLKATA	24/2 M.G. Road, SURENDRANATH COLLEGE KOLKATA-700009	Chaitali barman @gmail.com 9474661947	BBarman 2/1/19
ASUT53	KISHORE RAVADA GITAM Visakhapatnam	A B S E N T		
	Dr. M. Ramar			
	Bharathiar University	Bharathiar	ramarev@	
	Coimbatore, Tamil Nadu	University	gmail.com	
		Coimbatore,	9500356440	2/1/2019
		Tamil Nadu		

SCIENCE ACADEMIES' REFRESHER COURSE



Organized by



Surendranath College, Kolkata 700009

Certificate for Participation

*This is to certify that Dr. Harisadhan Ghosh, Assistant Professor of Chemistry, Surendranath College, Kolkata, 700009 has participated and successfully completed two weeks Science Academies' Refresher Course on "**Fundamentals and Applications of Chemistry in Material and Biological Sciences: Recent Trends**" held at Surendranath College, Kolkata, West Bengal from 02-17 January 2019.*


Dr. Bhaskar Biswas
Course Coordinator


Dr. Indranil Kar
Principal


Prof. Ashutosh Ghosh
Course Director

Picture of RC (02.01.2019-17.1.2019)



Inauguration of the Program by IQAC coordinator of Surendranath College, Kolkata



Banner of the Refresher Course



Talk by Resource Person



Participants of Refresher Course



Distribution of Certificate