1. A scientific report including information on the number of applications received, selected and the actual participation:

Names and full address of applicants received initially

1. Dr. Ranjana Prakash, Lecturer, School of Chemistry and Biochemistry, Thapar Institute of Engineering and Technology, Patiala – 147 004
2. Dr. Neerja Gupta, Reader, Department of Chemistry, A N D N N M Mahavidyalaya, Kanpur
3. Dr. Rama Agarwal, Reader, Department of Chemistry, A N D N N M Mahavidyalaya, Kanpur
4. Dr. Pinaki Bandyopadhyay, Reader in Chemistry, University of North Bengal, P.O. Raja Ram Mohunpur, Dt. Darjeeling, PIN 734 430
5. Dr. Partha Sarathi Sengupta, Senior Lecturer in Chemistry, Achhruram Memorial College, P.O. Jalda, Dt. Purulia, PIN 723 102
6. Dr. Kamalika Banerjee (Kar), Lecturer in Chemistry, Raj College, Mahishadal, Poorba Medinipur, PIN 721 628
7. Dr. Sanjaykumar V. Divekar, Asst. Prof., Department of Chemistry, Gogte Institute of Technology, Udyambag, Belgaum
8. Dr. Yagati Satyanarayana Ramaswamy, Prof. of Chemistry, A ārya Pathasala College of Arts & Science, Narasimharaja Colony, Bangalore – 560 019
9. Dr. V. K. Revanker, Reader, Department of Chemistry, Karnatak University, Dharwad – 580 003
10. Dr. S. P. Pandey, Reader, Chemistry Department, Atarra P G College, Atarra, Banda, PIN 210 201
11. Dr. S. Balasubramanian, Lecturer, Department of Inorganic Chemistry, A C College Campus, University of Madras, Chennai – 600 025
12. Dr. (Mrs.) Arti Saxena, Reader, Department of Chemistry, A N D N N M College, Kanpur
13. Dr. N. Shashikala, Reader in Chemistry, Department of Studies in Chemistry, Bangalore University, Bangalore – 560 001
14. Mr. N. K. Govindan, Lecturer in Chemistry, Govt. College of Engineering, Kannur University, Kannur – 670 563
15. Dr. A. Muralidharan, Reader, Department of Chemistry, Nehru Arts & Science College, Kanhangad, Dt. Kasaragod, P. O. Padnekat – 671 328
16. Mr. V. Karunakaran, Lecturer, Department of Chemistry, Nehru Arts & Science College, Kanhangad, Dt. Kasaragod, P. O. Padnekat – 671 328
17. Dr. M. C. Mary, Lecturer, Nirmalagiri College, Nilmalagiri P. O. (PIN 670 701), Via Tellicerry
18. Mr. S. Kandasamy, Lecturer in PG Department of Chemistry, Sri S R N M College, Sattur – 626 203
19. Dr. G. Senthil Kumaran, Head, Department of Chemistry, Mahendra Arts & Science College, Dt. Namakkal, Kalipatti – 637 501
20. Dr. Gyanendra K. Parashar, Reader in Chemistry, Swami Shradhanand College, Alipur Delhi – 110 036
21. Dr. D. K. Dwivedi, Reader, Chemistry Department, Atarra P G College, Atarra, Banda, PIN 210 201
22. Dr. D. C. Gupta, Lecturer, Chemistry Department, Atarra P G College, Atarra, Banda, PIN 210 201
23. Dr. S. C. Agarwal, Lecturer, Department of Chemistry, Agra College, Agra – 282 002
24. Dr. Sumita Bhatia, Reader, Department of Chemistry, A N D N N M Mahavidyalaya, Kanpur
25. Ms. Monideepa Chakrabortty, Lecturer, Department of Chemistry, Assam Engineering College, Jalukbari, Guwahati – 781 013
26. Dr. Satyaban Jena, Head, Department of Chemistry, Utkal University, Vani Vihar, Bhubaneswar – 751 004
27. Trivedi Uday N., Lecturer in Physics, L. E. College, Morbi-363642

No. of candidates applied: 27
No. of candidates selected: 26
Rejected: 1 (No. 27)

In fact, on the day of inauguration the number of participants actually showed up was only 12 (Serial Nos. 1-12). Then additional circulars were sent to local colleges. As a result from December 22, 2003 five more participants joined the programme.
During inaugural function (December 18, 2003: 09:30 – 10:30) the Director of Indian Institute of Technology Kanpur Prof. S. G. Dhande and Course Director Prof. R. N. Mukherjee emphasized on the importance of refresher course in present day science when everything is becoming interdisciplinary. The role of basic chemistry in general and inorganic chemistry in particular in achieving good understanding of every chemical phenomenon was aptly emphasized.

The course was organized with the following motivation: (i) The participants will be able to incorporate modern inorganic chemistry topics into the curricula to their respective institutions and (ii) Lectures by various experts would demonstrate the strong inter-relationship between different branches of modern inorganic chemistry.

The course started with a general mixer on December 18, 2003 where the expectations and requirements of the course were discussed. Every morning there were three lectures (all lectures were for 60 minutes) on various aspects of inorganic chemistry while in the afternoon practical sessions were held.

Visits

During the course, a half-day (in and around Kanpur) and full-day (Lucknow) visits were arranged for site-seeing.

Scientific Programme

Lectures

In all lectures emphasis was given to fundamentals. The following topics were considered by the resource persons. Transition Metal Chemistry: Structure, Magnetism, and Spectra; Bioinorganic Chemistry: Basic Principles & Selected Examples; Environmental Bioinorganic Chemistry; Supramolecular Chemistry; Main Group Chemistry: Basic Principles & Selected Examples; Organometallic Chemistry: Concepts and Selected Catalytic Cycles.

Photocopies of the lecture notes were provided to the participants. A book titled "Elements of Magnetochemistry" by R. L. Dutta ans A. Syamal was distributed to each participant.

Laboratory Experiments

In the afternoon session (2 and ½ hours duration) practical experiments were set up to demonstrate how a few simple inorganic chemistry experiments can be carried out in a college laboratory using bare minimum laboratory facilities. The experiments conducted include: (i) A few demonstration experiments: Invisible Ink; (ii) Extraction and Identification of DNA from Green Peas; (iii) Determination of Calcium in Milk Powder by EDTA; (iv) Preparation and Photochemistry of Tris(oxalato)iron(III); (v) Blue Printing by Photochemical Reduction of Tris(oxalato)iron(III); (vi) Preparation of [Ni(NH3)6]Cl2 and Use of UV-vis Spectroscopy for Characterization; (vii) Iodine in Iodized Common Salt; (viii) Preparation of Acetylferrocene and its Purification by Column Chromatography, and Characterization by IR and UV-vis Spectra.

A book titled "General Chemistry Experiments" by A. J. Elias was distributed to each participant.

Feedback

From the viewpoints expressed at the feedback session, it appeared that the teacher participants were happy with the content and execution of the course. While not downgrading the effort, the participants from local colleges in Kanpur felt that more lectures on fundamental topics would have made the whole exercise more useful. A very good rapport was established between the teacher-participants and the course resource persons, and on the whole it was a pleasant and useful experience.

Participants showed extraordinary enthusiasm despite long hours of work each day, partly because of exposure they gathered with close interactions with the resource persons in general and the Course Director in particular.

There was a deeply appreciative feeling widely viewed on several occasions that the Academy by this initiative had added a new dimension to the academic environment of the region, and that the course will, in turn, go much further than initially imagined, in spurring new initiatives at college and University departments in northern India towards enriching teaching and research in inorganic chemistry.

The response to this programme has been overwhelming.
2. Names and full address of participants:
   Participants joined only from December 22, 2003 (Serial Nos. 13-17)

1. Dr. Ranjana Prakash, Lecturer, School of Chemistry and Biochemistry, Thapar Institute of Engineering and Technology, Patiala – 147 004
2. Dr. S. P. Pandey, Reader, Chemistry Department, Atarra P G College, Atarra, Banda, PIN 210 201
3. Dr. Neerja Gupta, Reader, Department of Chemistry, A N D N N M Mahavidyalaya, Kanpur
4. Dr. Rama Agarwal, Reader, Department of Chemistry, A N D N N M Mahavidyalaya, Kanpur
5. Dr. Pinaki Bandyopadhyay, Reader in Chemistry, University of North Bengal, P.O. Raja Ram Mohipur, Dt. Darjeeling, PIN 734 430
6. Dr. Partha Sarathi Sengupta, Senior Lecturer in Chemistry, Achhuram Memorial College, P.O. Jhalda, Dt. Purulia, PIN 723 102
7. Dr. Kamalika Banerjee (Kar), Lecturer in Chemistry, Raj College, Mahishadal, Poorba Medinipur, PIN 721 628
8. Dr. Sanjaykumar V. Divekar, Asst. Prof., Department of Chemistry, Gogte Institute of Technology, Udyamarg, Belgaum
9. Dr. Yagati Satyanarayana Ramaswamy, Prof. of Chemistry, Acarya Pathasala College of Arts & Science, Narasimharaja Colony, Bangalore – 560 019
10. Dr. V. K. Revanker, Reader, Department of Chemistry, Karnataka University, Dharwad – 580 003
11. Dr. S. Balasubramanian, Lecturer, Department of Inorganic Chemistry, A C College Campus, University of Madras, Chennai – 600 025
12. Dr. (Mrs.) Arti Saxena, Reader, Department of Chemistry, A N D N N M College, Kanpur
13. Dr. Gyan Deep Nigam, Department of Chemistry, D. A. V. College, Kanpur – 208 001
14. Dr. (Mrs.) Sushma Rani, Department of Chemistry, D. G. College, Kanpur – 208 024
15. Dr. (Mrs.) Alka Srivastava, Department of Chemistry, D. G. College, Kanpur – 208 024
16. Dr. (Mrs.) Suman Katiyar, Department of Chemistry, D. B. S. College, Kanpur
17. Dr. (Mrs.) Sapan Shukla, Department of Chemistry, D. B. S. College, Kanpur
3. Names and address of speakers:

1. Professor R. Murugavel
   Department of Chemistry
   Indian Institute of Technology Bombay, Powai
   Mumbai – 400 076

2. Professor A. J. Elias
   Department of Chemistry
   Indian Institute of Technology Delhi, Hauz Khas
   New Delhi – 110 016

3. Dr. S. Goswami
   Department of Inorganic Chemistry
   Indian Association for the Cultivation of Science
   Kolkata – 700 032.

4. Professor S. Sarkar
   Department of Chemistry
   Indian Institute of Technology
   Kanpur – 208 016

5. Professor P. K. Bharadwaj
   Department of Chemistry
   Indian Institute of Technology
   Kanpur – 208 016

6. Professor R. N. Mukherjee (Course Coordinator)
   Department of Chemistry
   Indian Institute of Technology
   Kanpur – 208 016

4. Time-Table of the Course:

Lecture Schedule of Resource Persons

Professor R. N. Mukherjee (RNM): 8 lectures
(i) Magnetism and Absorption Spectra of Coordination Complexes
(ii) Bioinorganic Chemistry: Basic Principles and Selected Examples
(iii) Variable Valence of Transition metal Ions: Redox Chemistry
(iv) EPR Spectroscopy: Applications to Transition Metal Complexes
Professor P. K. Bharadwaj(PKB): 7 lectures
   (i) Supramolecular Chemistry: Basic Concepts and Selected Examples
   (ii) Metal-Organic Framework Structures
   (iii) Water Clusters in Crystal Hydrates
   (iv) Non-linear Optical Effects
   (v) Fluorescence Signaling by Metal Complexes

Professor S. Sarkar (SS): 7 lectures
   (i) Bioinorganic Chemistry: Basic Principles and Selected Examples
   (ii) Oxides and Hydrides of Nitrogen and Sulfur and its Relevance to
        Bioinorganic/Environmental Chemistry
   (iii) Carbon Chemistry: Inorganic Perspectives
   (iv) Environmental Bioinorganic Chemistry

Professor Anil J. Elias (AJE): 3 lectures
   (i) Fluorine in Main Group Chemistry
   (ii) Application of Inorganic Heterocycles
   (iii) Electron Count Rules (Wade/Jemmis) in Carborane Chemistry

Professor R. Murugavel (RM): 3 lectures
   (i) Organometallic Chemistry: Basic Principles and Examples
   (ii) Synthetic Zeolites

Dr. S. Goswami (SG): 3 lectures
   (i) Absorption Spectra of Transition Metal Compounds: Basic Principles and
       Selected Examples
   (ii) Redox Chemistry of Transition Metal Compounds: Basic Principles and
        Selected Examples

Theory: Lectures

(Dec. 18th, 19th, 20th, 22nd, 23rd, 24th, 26th, 27th, 29th, 30th) --- 30 Lectures
A special lecture by Prof. R. N. Mukherjee on EPR Spectroscopy: Applications to
Transition Metal Complexes

Total Number of Lectures: 31

Morning Session --- 3 lectures

December 18, 2003
10:15 – 11:15
11:15 – 12:15
12:15 – 12:30 Tea/Coffee Break
12:30 – 13:30
13:30 – 14:15 Lunch Break
December 19-20, 22-27, 29-30, 2003
09:30 – 10:30
10:30 – 11:30
11:30 – 11:45 Tea/Coffee Break
11:45 – 12:45

Lecture Distribution ---
Dec 18th: RNM, RNM, RNM
Dec 19th: RNM, AJE, RNM
Dec 20th: PKB, PKB, PKB
Dec 22nd: SG, SS, SG
Dec 23rd: SG, SS, PKB
Dec 24th: PKB, SS, PKB
Dec 26th: SS, PKB, SS
Dec 27th: SS, RNM, SS
Dec 29th: RNM, AJE, RM
Dec 30th: RM, AJE, RM

December 31, 2003 (10:00 – 11:00)
A special lecture by Prof. R. N. Mukherjee on EPR Spectroscopy: Applications to Transition Metal Complexes

Valedictory function (distribution of certificates by Prof. N. Sathyamurthy):
December 31, 2003: 11:00 – 12:00.

Laboratory Experiments Done

Dec. 18th, 19th, 22nd, 23rd, 24th, 26th, 29th, and 30th --- 8 Experiments

Afternoon Session: 14:00-17:00 Proposed (1st yr. UG & M.Sc Inorg Chem Laboratory: CL 101A-E)

(i) A few demonstration experiments: Invisible Ink
(ii) Extraction and Identification of DNA from Green Peas
(iii) Determination of Calcium in Milk Powder by EDTA
(iv) Preparation and Photochemistry of Tris(oxalate)iron(III)
(v) Blue Printing by Photochemical Reduction of Tris(oxalate)iron(III)
(vi) Preparation of [Ni(NH$_3$)$_2$]$^{2+}$ and Use of UV-vis Spectroscopy for Estimation
(vii) Iodine in Iodized Common Salt
(viii) Preparation of Acetylferrocene and its Purification by Column Chromatography, and Characterization by IR and UV-vis Spectra
Laboratory Experiments: 2 and \( \frac{1}{2} \) hours duration
Prof. A J Elias conducted 7 days
Prof. R N Mukherjee conducted 1 day (Prof. R. N. Mukherjee used to be present in the laboratory everyday for \( \sim 30 \) min).

5. Duly-completed feedback forms: enclosed

6. Group photographs of participants/resource persons: enclosed

7. Audited statement of accounts with supporting vouchers: enclosed