

**AICTE Training and Learning (ATAL)
Online 6 Days Faculty Training
Programme
On**

**Rare earth based novel
nanomaterials / materials for
various Applications**

**SPONSORED BY AICTE
UNDER
ATAL SCHEME**

9th December to 14th December 2024



ORGANISED BY

**Department of Chemistry
School of Humanities & Sciences
Ramdeobaba University, Nagpur**



CHIEF PATRON

Shri Satyanarayan Nuwal

Chairman, Shri Ramdeobaba Sarvajanic Samiti
& CEO of Solar Group of Industries

Shri Rajendra Purohit

General Secretary, Shri Ramdeobaba Sarvajanic Samiti,
Nagpur

Dr. Shankar S Mantha

Chancellor Ramdeobaba University Nagpur,
[former Chairman of the National Regulator (AICTE)]

Dr. Rajesh S. Pande

Vice Chancellor, Ramdeobaba University, Nagpur

ADVISORY

Dr. A. V. Bharati

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PROGRAM COORDINATOR

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ORGANIZING COMMITTEE

Dr. S. M. Meshram

Dr. C. P. Pandhurnekar

Dr. S. L. Mudliar

Dr. P. A. Mangrulkar

RESOURCE PERSONS

- Dr. V. Balaram** (Former Emeritus Scientist, Chief Scientist & Head, Geochemistry Division CSIR - National Geophysical Research Institute (NGRI), Hyderabad- 500 007, India)
- Dr Raghav Saran** (Former Senior Scientist, SO GIncharge, Chemistry Laboratory, NER, Shillong AMD/ DAE)
- Dr. Mangesh Diware**, (Sr. Application Scientist Park System, Inc. 3040 Olcott Strret Clara, CA 9505, Tel. 408-986-1110)
- Dr. Nilesh Barange** (Display System Engineer at LINCON technology solutions. 111 Carning Road, Suite 116, Cary, NC 27518)
- **Dr. Dhruva Kumar Singh** (Head, Hydrometallurgy and Rare Development Section MP&CED, Materials Group, BARC, Mumbai)
- **Dr. Subir Kumar Ghosh** (Head, Surface Engineering Section, MP&CED, Materials Group, BARC)
- **Dr. Ritesh Ruhela** (SO/G, H&REDS, MP&CED, Materials Group, BARC)
- Dr. Palani Balaya** (Professor of Mechanical Engineering, College of Design and Engineering National University of Singapore, 117575)
- Dr. Kinshuk Dasgupta** Scientific Officer H
•Head, Advanced Carbon Materials Section G&AMD, Materials Group, Associate Professor
Homi Bhabha National Institute, Anushakti nagar, Mumbai
- Dr. W. B. Gurnule** (Professor and Head, Department of Chemistry , Kamla Nehru, Mahavidyalaya, Nagpur)
- **Dr . D. P. Bisen**, Professor, SOS of Physics and Astrophysics, Pt. Ravishankar Shukla University, Raipur
- **Dr. Kanchan Upadhyay**, DST WOS-B Fellow, Department of Applied Physics, Bhilai Institute of Technology, Durg
- **Dr Ruby Varghese**, Department of Chemistry and Biochemistry, Jain(Deemed to be) University, Bangalore

ABOUT THE INSTITUTE

Ramdeobaba University (RBU) is a self financed University approved by Government of Maharashtra and University Grant Commission, New Delhi. It stands as a testament to a forty-year educational journey, rooted in the cultivation of human potential with a strong emphasis on universal values.

Established in 1984 by the Shri Ramdeobaba Sarvajanic Samiti, Nagpur, under the visionary leadership of founding chairman Shri Banwarilal Purohit, former Honourable Governor of Punjab and Administrator of Chandigarh, RCOEM saw a transformative era under the stewardship of Shri Satyanarayan Nuwal, CEO of Solar Group of Industries, recognized among India's top 100 CEOs. This leadership propelled RCOEM to national prominence, evident through its high NIRF ranking, A+ NAAC grade, Diamond Rating by QS I-Gauge, Innovative Campus Award, National Employability Award, and various other accolades. In pursuit of broader progress, RCOEM has now evolved into Ramdeobaba University (RBU). Spanning 17 acres in Nagpur, Central India. RBU houses nine schools such as the School of Engineering Sciences, School of Electrical and Electronics Engineering, School of Computer Science and Engineering, School of Management, School of Humanities and Sciences, School of Innovation and Incubation, School of Indian Knowledge System (IKS), School of Languages, and School of Entrepreneurship. Offering a diverse array of undergraduate, postgraduate, Ph.D., diploma, certificate, and value-added courses, RBU blends modern and traditional knowledge systems.

RBU's distance education programs cater to regional needs, providing quality education and skill development for local industries. Collaborations with national and international institutions and industries enhance exposure to global technologies, equipping students to compete globally. Ramdeobaba University cultivates holistic growth and empowers students to spearhead global progress, merging contemporary and traditional knowledge systems within a dynamic learning milieu.

PROGRAM OBJECTIVE

The objective of this FDP: Materials science is a field that focuses on understanding, improving, and creating new materials. It includes understanding of materials, development of new materials and improving the properties of existing materials. Rare-earth-based nanomaterials exhibit important advantages over other available luminescent nanomaterials due to their low toxicity, photostability, high thermal and chemical stability, sharp emission bands, high luminescence quantum yields and relatively long luminescence decay times. Among the most common inorganic matrices are the fluoride matrix (very low vibrational energies) as well as the tungstate, molybdate and vanadate matrices. An important research topic concerning rare-earth-based nanomaterials is the development of core-shell nanoparticles and up-conversion nanoparticles. Up-conversion is the process where the absorption of two or more photons leads to the emission of light at shorter wavelengths than the excitation wavelength, which means that near-infrared excitation is converted to visible wavelengths. Developing core-shell nanostructures allows minimizing the surface quenching effects, which results in the enhanced luminescence of such materials. Recently a very attractive topic has been nanothermometers and rare-earth-based nanothermometers. They are crucial for the development of temperature sensors in nanoelectronics, nanophotonic, chemical microreactors and thermal barrier coatings.

THEMES

The Faculty Development Program (FDP) aims to provide a comprehensive and in-depth understanding of Advanced materials. It will cover the following interdisciplinary area of science:

- Fundamentals of Advance materials
- Use of Rare earth in preparation of advance materials.
- Different Applications
- Rare earth materials for biological applications
- Characterization and testing methods
- Biocompatibility study of Materials
- Sustainable biocomposite
- Engineered Nanostructured Materials for Tailored Applications
- Structural characterization and Image analysis
- Responsive and functional materials

TARGET PARTICIPANTS

The faculty members of the AICTE approved institutions, research scholars. PG Scholars, participants from Government, Industry (Bureaucrats / Technicians / Participants from Industry etc.) and faculty of host institutions.

REGISTRATION FEE

There is no registration fee for participants

REGISTRATION

Registration has to be done only through <https://atalacademy.aicte-india.org/>

SELECTION

The seats are limited to 200 candidates. The selection of the participants will be based on the first come first serve basis.

The intimation regarding selection will be sent to the candidates by email as per the schedule.

NOTE

A test will be conducted by coordinators at the end of the programme. The certificate shall be issued to those participants who have attended the programme with 80% attendance and scored minimum 60% marks in the test.



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Ramdeobaba University, Nagpur
(Shri Ramdeobaba College of Engineering & Management, Nagpur)

Cordially Invite you on the occasion of

Inaugural Ceremony of



AICTE Training and Learning (ATAL)
Online 6 Days Faculty Training Programme
From 9 - 14 December , 2024
On

**Rare Earth Based Novel Nano-materials/Materials for
Various Applications**

Organised by

Department of Chemistry
School of Humanities and Basic Sciences
RBU, Nagpur

December 09, 2024, Time: 6.00 pm (Online Mode)



in the auspicious presence of

Hon'ble Dr. S. S. Mantha, Chancellor,
Ramdeobaba University, Nagpur

in the august presence of

Dr. Rajesh Pande, Vice-Chancellor (Incharge), RBU, Nagpur
Dr. M. B. Chandak, Principal (offg) , RCOEM, Nagpur

Dr. Suraj S. Butoliya
FDP Coordinator
RBU, Nagpur

Dr. Raunak Tamrakar
FDP Co-coordinator
BIT, Durg

ATAL Online 6 Day Faculty Development Programs 2024-25 Schedule FDP Thrust

Area: Advanced Materials, Rare-earth & Critical Minerals

FDP Title: Rare earth based novel nanomaterials / materials for various Applications

StartDate: 9 December

End Date: 14 December

Day 1 (9 December 2024)	Day 2 (10 December 2024)	Day 3 (11 December 2024)	Day 4 (12 December 2024)	Day 5 (13 December 2024)	Day 6 (14 December 2024)
6:00PMto6:30PM InauguralSession in the auspicious presence of Hon'ble Dr. S. S. Mantha , Chancellor, Ramdeobaba University, Nagpur. Dr. Rajesh Pande , Vice-Chancellor (Incharge), RBU, Nagpur Dr. M. B. Chandak , Principal (offg), RCOEM, Nagpur	6:00PMto7:30PM Session3 Topic: "A journey through Graphene and Graphene-derivatives"Name of the Expert: Dr. Kinshuk Dasgupta (Shanti Swaroop Bhatnagar Awardee) Scientific OfficerH Head, Advanced Carbon Materials Section G&AMD, Materials Group, Associate Professor Homi Bhabha National Institute Anushakti nagar, Mumbai 400085, India Years of Exp: 26 Years	6:00PMto7:30PM Session5 Topic: Advanced display / optics materialsfor modern OLEDs Name of the Expert: Dr. Nilesh Barange Designation & Organization: (Display System Engineer at LINCON technology solutions. 111 Carning Road,Suite 116, Cary, NC 27518) Years of Exp:18 Years	6:00PMto7:30PM Session7 Topic: Integrating OECD Animal Testing Guidelines with ASTM Standards for EvaluatingNovel Biomaterials: A Comprehensive Approachto Safety and Efficacy Name of the Expert: Dr Ruby Varghese Designation&Organization: Department of Chemistry and Biochemistry Jain(Deemed to be) University, Bangalore Years of Exp: 15	6:00PMto7:30PM Session9 Topic: Use of molecular recognition technology for synthesis of ligands and resins for separation of rare earths. Name of the Expert: Dr. Ritesh Ruhela Designation&Organization: (SO/G, H&REDS, MP&CED, Materials Group, BARC) Years of Exp: 28 Years	2:00 PM to 3:30 PM Session11 Topic: "Resource sustainability ofCritical & Rare Earths through Recycling" Name of the Expert: Dr. Dhruva Kumar Singh Designation&Organization: (Head, Hydrometallurgy andRare Development Section MP&CED, Materials Group, BARC, Mumbai) Years of Exp: 32 Years
6:30PMto8:00PM Session1 Topic:Lithium Occurrence, Applications, Exploration, Analysis, Recycling, and Environmental Impact with Special Reference to India Name of the Expert: Dr. V. Balaram Designation&Organization:(Former Emeritus Scientist, Chief Scientist & Head, Geochemistry Division CSIR - National Geophysical Research Institute (NGRI), Hyderabad- 500 007, India) Years of Exp: 38 Years	7:30 PM to 9:00 PM Session4 Topic:Imagining Spectroscopic Ellipsometry: unlocking the secrets of Advanced materials Name of the Expert: Dr. Mangesh Diware , Designation&Organization:(Sr. Application Scientist Park System, Inc. 3040 Olcott Street Clara, CA 9505, Years of Exp: 18 Years	7:30PMto9:00PM Session6 Topic: Rare earth doped silicate- based phosphors and their applications Name of the Expert: Dr. D P Bisen Designation&Organization:Prof essor, SOS of Physics and astrophysics, Pt Ravishankar Shukla University Raipur. Years of Exp:29	7:30PMto9:00PM Session8 Topic: Biomedical Applications of Lanthanide Nanomaterials, for Imaging, Sensing and Therapy Name of the Expert: Dr. Kanchan Upadhyay Designation & Organization: DST WOS-B Fellow Department of Applied Physics, Bhilai Institute ofTechnology Years of Exp: 17	7:30PMto9:00PM Session10 Topic: Advanced Sustainable Functional Nanomaterials Name of the Expert: Dr. W. B. Gurnule Designation & Organization: (Professor and Head, Department of Chemistry , Kamla Nehru, Mahavidyalaya, Nagpur) Years of Exp: 30 years	3:30PMto5:00PM Session12 Topic: "Energy Storage Devices And Lithium Ion Battery- A Perspective". Name of the Expert: Dr. Palani Balaya Designation&Organization: (Professor of Mechanical Engineering, College of Design and Engineering National University of Singapore, 117575) Years of Exp: 30 Years
8:00PMto9:30PM Session2 Topic:Role of Niobium, Tantalum and Rare Earth Elements in Nuclear Chemistry and their Quantification employing ICP OES Name of the Expert: Dr Raghaw Saran Designation&Organization:(Former Senior Scientist, SO GIncharge, Chemistry Laboratory, NER, Shillong AMD/ DAE) Years of Exp: 35 Years					5:00PMto7:30PM Session13 Topic: "Role of surface coating forrare earth based advanced materials" Name of the Expert: Dr. Subir Kumar Ghosh Designation&Organization: (Head, Surface Engineering Section, MP&CED, Materials Group, BARC) Years of Exp: 30 Years
					6:30PMto7:30PM OnlineTest&Feedback
					7:30PMto8:00PM ValedictorySession