

5.1.2 CAREER COUNSELLING

DEPARTMENT OF CHEMISTRY
UNIVERSITY OF KASHMIR

ABOUT THE DEPARTMENT OF CHEMISTRY

Head's Desk-Message

As Head of the Department, it is my privilege to lead a team of esteemed faculty, dedicated staff, and talented students who share a common passion for quality education, scientific innovation and societal outreach. Chemistry plays a vital role in our understanding of the world and offers limitless possibilities for scientific exploration, innovation, and positive societal impact. As we embark on this path together, I want to convey our shared vision and commitment to excellence. I want to express my deepest appreciation to our dedicated faculty members, whose expertise and passion for teaching and research form the backbone of our department. Despite limited resources, your unwavering commitment to nurturing our students' intellectual growth and pushing the boundaries of scientific knowledge is truly commendable. I encourage you to continue fostering a vibrant and inclusive academic environment that sparks curiosity and empowers our students to become critical thinkers and problem solvers. To our students, I extend my warmest welcome. You are at the heart of our department, and we are here to support your academic and personal growth. Embrace the challenges and opportunities that lie ahead, and remember that your journey in chemistry is not limited to the confines of the classroom. Engage with your peers, collaborate with faculty members, and take advantage of the whatever resources available to you. Through your dedication and hard work, you will develop the skills and knowledge needed to achieve the vision of the department. Our department's commitment to excellence extends beyond education, as we strive to be at the forefront of innovative research. Together, we will push the boundaries of knowledge, exploring new frontiers and addressing pressing global challenges from this part of the country. Let us embrace interdisciplinary collaborations, forging partnerships with other departments and institutions, as we recognize that groundbreaking discoveries often emerge at the intersections of disciplines. Through our research, we aim to make a visible difference in the areas such as sustainable chemistry, materials science, drug discovery, etc. As ambassadors of chemistry, we also have a responsibility to engage with the broader community. Let us reach out to schools, community organizations, and the public to promote scientific literacy, inspire young minds, and demonstrate the relevance of chemistry in everyday life. By fostering public understanding and appreciation for our discipline, we can forge stronger connections and create a positive impact that extends far beyond the walls of our department.



In conclusion, I am pleased and honored to lead the Department of Chemistry on this journey of discovery, learning, and innovation. Together, let us uphold the highest standards of scientific excellence, integrity, and professionalism. Let us foster a supportive and inclusive community that values diversity and respects the varying perspectives. By working together, we can fulfill our mission of advancing knowledge, educating future leaders, and using chemistry to improve our world.

Prof. Aijaz Ahmad Dar
Head of the Department

OVERVIEW OF THE DEPARTMENT

The Department of Chemistry is one of the oldest departments of The University of Kashmir, Hazratbal, established in 1969 with the sanctioned strength of 14 teaching posts (2 professors, 6 Associate professors and 6 Assistant Professors). The Department offers P.G. programme in Chemistry comprising of four semesters through Choice Based Credit System (CBCS) with the current intake capacity of 72 having core, discipline centric and interdisciplinary courses. The department strives to provide high-quality education and training in chemistry to its students with the mission of developing their critical thinking, problem-solving, and laboratory skills, preparing them for successful careers in academia, industry, or other related fields. This programme serves as a launching pad in generating quality human resource for teaching at 10+2, College and University levels and for doctoral & post-doctoral studies in frontier areas of science in both national and international Labs. The department is seriously involved in conducting impactful research in various thrust areas of chemical science including natural product chemistry, synthetic chemistry, soft matter, electrochemistry, material chemistry, bioinorganic/biophysical chemistry, and crystal engineering. The students have access to a departmental library where a large collection of international and national reputed text/reference books are housed. Besides this, the department has a high-end instrumentation facility like SECM, Rheometer, Electrochemical workstation, TGA, HPLC, Fluorimeter, LC-MS, IR, UV-Visible spectrometers, stopped flow kinetic systems, Fluorescence microscope, Tensiometer etc. and laboratory infrastructure for conducting quality research. The department was awarded **DST-FIST** program in years 2003, 2011 and 2021 to the tune of **3.8 crore**. The **SAP-UGC (DRS-I)** was awarded in 2016 with an amount of **1.22 Crore**. The department is the part of DST-PURSE and MHRD-RUSA programs awarded to the University of Kashmir with the share of about 3 crores. The department of chemistry regularly organises various workshops, symposia, and national/international conferences on thrust areas of chemical sciences. A large number of postgraduate students qualify NET and GATE examinations every year. During the last 10 years, the department has produced **52 Ph.Ds**, published **450** research papers in Scopus indexed journals, and generated about **5 crores** through core grants and **1.5 crore** as mentorship projects including WOS-A, NPDF, CSIR-RA, and UGC-Kothari funded by DST, SERB, UGC and CSIR during 2011-2020.

VISION STATEMENT

We envision to develop our department as centre of excellence in chemical education, foster innovations in research, address societal challenges, inspire and empower students to become lifelong learners and leaders in the field of chemistry, and to promote sustainability for growth of ecologically conscious future.

MISSION STATEMENT

Our mission is to provide high quality teaching environment to our students, conduct innovative research, foster scientific excellence, promote ethical conduct, engage in knowledge transfer and outreach, and contribute to societal and environmental well-being through the application of chemistry.

WHY RECRUIT US?

1. Foundations in Chemistry

The chemistry as a subject in our department is divided into several widely recognized subfields and it is mandatory for all the students to take courses in inorganic chemistry, organic chemistry, and physical chemistry, in addition to which advanced courses in the area of material synthesis, characterization and applications are taught as discipline centric courses. We make sure that a chemistry major should be knowledgeable about the important theories, experimental evidence, and applications of these subfields and on the completion of the master programme, a student should be able to apply knowledge from a combination of subfields to solve problems of a chemical nature.

2. Laboratory and Project Skills

Chemistry is a laboratory science. So we at the department ensure that all of our chemistry students should acquire the skills necessary to work in an academic, commercial, or industrial laboratory after graduation. These skills include experience with the instruments, glassware, synthetic methodologies, and techniques commonly used in laboratory settings. At the end of the master's programme, students are able to work collaboratively on problems/projects/investigations, and they develop an ability to design experiments from the ground up.

3. Analytical Skills

We in the department emphasize that all chemistry majors should be able to draw appropriate and reasonable conclusions from the data/results they collect in the laboratory. Students learn how to assess the uncertainty, precision, and significance of data using formal statistical techniques; as they are comfortable in using commercial software's designed for data manipulation and presentation; and they become familiar with sophisticated chemical computation software's. Student are given independent problems during project course during which they inculcate problem solving temperament.

4. Communication Skills

A successful chemistry graduate has to be communicating in a variety of formats commonly used by chemists. The department has identified certain key areas in this prospect viz; the literature summary, the formal laboratory report, the research poster, the research proposal, and the dissertation/research followed by a seminar presentation. These practices train a student to gather, consolidate and communicate the information, in a more comprehensive way. Therefore, our students have the capability to collect new information, compare it with existing knowledge, make new conclusions out of it and communicate it to the broader audience in both written and oral form.

5. Research Tools

Research is the method by which scientific knowledge is acquired, and all chemistry majors should be capable of conducting an independent research project. At Chemistry department emphasis is made on that our taught know how to search reference sources and literature databases for specific information. They should have experience reading the primary scientific literature, develop a hypothesis regarding a significant chemical question, design a method to test that hypothesis, carry out the method they propose, and evaluate the results.

We are proud of the many outstanding achievements of our students -these highlight the excellent quality of our teaching and research..!

SCOPE:

HEALTH:

The world faces major challenges that demand a response from chemistry. Partnerships are needed between countries, disciplines – including social sciences – and the public and private sectors. There are a number of areas where there is likely to be an increased demand for

chemistry. Advances in personalized medicine, mutational drugs, sequencing, vaccines to deal with global health issues and treatments linked to an ageing population are important developments where chemistry will play a role. The health sector provides a wide choice of chemistry careers.

Some of areas in health sector wherein a chemist finds its scope are as under:

- Chemist as a drug designer (Scientist).
- Chemistry graduate as a synthetic chemist in a pharmaceutical company.
- Chemist as lab analyst: one who identifies toxic substances and evaluates potential harmful effects in water, air & soil. Conducts laboratory and field experiments
- Chemist as a quality control for drugs: drug inspection
- Chemist as a food inspector.

RESEARCH:

Chemistry graduates progress into a number of programmes from BSC through to master's and PhD level. These degrees provide advanced research and writing options with a range of jobs such as:

- Research scientist / associate: Designs and conducts research experiments
- Analyses the data and results (Toxicologist, chemical consultant)
- Publishes journal papers, files patents, and presents information at conferences
- Produces research reports and advises business, government and industry Environmental scientist / technician
- Applies knowledge of atmospheric, water and soil chemistry to the environment
- Carries out field and lab tests and records data eg, measures level of pollutants
- Conducts analysis and writes technical reports
- Develops and oversees policy and procedures
- Interprets regulations and monitors compliance Field / laboratory technician
- Plans and carries out research experiments with guidance
- Maintains and calibrates equipment
- Liaises with scientists and industry personnel
- Collects and collates data Laboratory manager
- Manages laboratory staff, budgets, workloads
- Maintains and updates lab documentation
- Ensures safety and quality standards
- Reviews methods and validates results Secondary school teacher
- Plans and delivers instructional lessons

- Evaluates performance and provides feedback
- Sets and marks assignments and tests Science communicator
- Presents science topics to various audiences eg, publicising research findings

ORGANIZATIONAL:

Many types of organisations employ Chemistry graduates. They include:

- Government departments and agencies
- Crown Research Institutes (IITs)
- Other research organizations and laboratories (CSIR, IISER, NIT)
- Manufacturing firms
- Industrial plants
- Environmental consultancies
- Pharmaceutical companies
- Food and drink producers
- Research and development organizations
- Energy companies
- Secondary schools and universities (teachers, lecturers, Professors)

CAREER COUNSELING, PLACEMENT SUPPORT, AND INDUSTRY CONNECTIONS FOR STUDENTS:

Teachers of the Department are actively involved in counseling and mentoring of the students for higher studies in national and international institutes of eminence.

Department is active in sanitizing the master's students and reaches out to college and school children regularly. The outreach activities are focused on attracting the bright students towards applied science and awareness about scope and opportunities of the subject. Students of various schools visit the departmental laboratories and interact with scholars and teachers. Some of the significant activities towards career counseling conducted by the department in recent past include:

- 3-Day Yusuf Hamied Residential Chemistry Camp supported by Royal Society of Chemistry, for the Government school children.
- Chemistry Magic Shows including a motivational lecture and a series of funny and interesting experiments at different schools of the valley
- Outreach activities for rural areas with support of Indian National Young Academy of Sciences, New Delhi.

ACTIVITIES ORGANISED BY THE DEPARTMENT

**Insight and Hands on Training Program on Analytical Techniques in
Chemical, Physical and Biological Sciences**



Insight and Hands on Training Program on **Analytical Techniques in Chemical, Physical and Biological Sciences**

4th – 10th November, 2022

Under the aegis of

Synergistic Training program Utilizing the Scientific and Technological
Infrastructure (STUTI)



Organized by

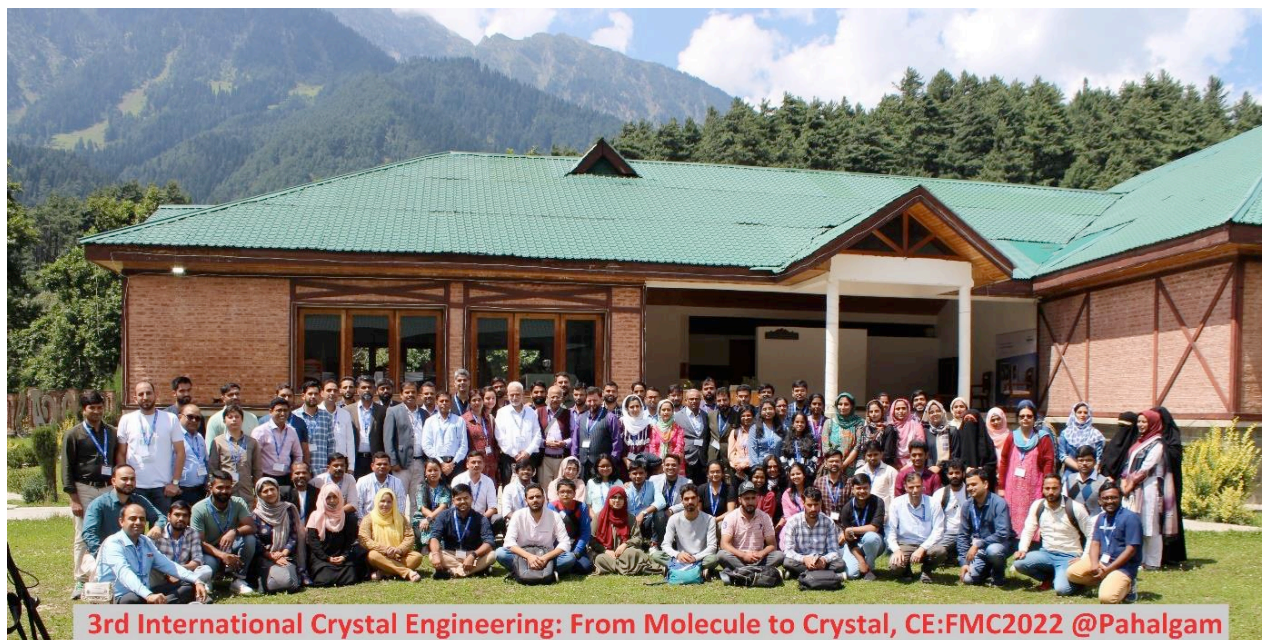
Department of Chemistry, University of Kashmir, Hazratbal, Srinagar, J&K



In association with

**Sophisticated Analytical Instrumentation Facility (SAIF), Panjab University,
Chandigarh**

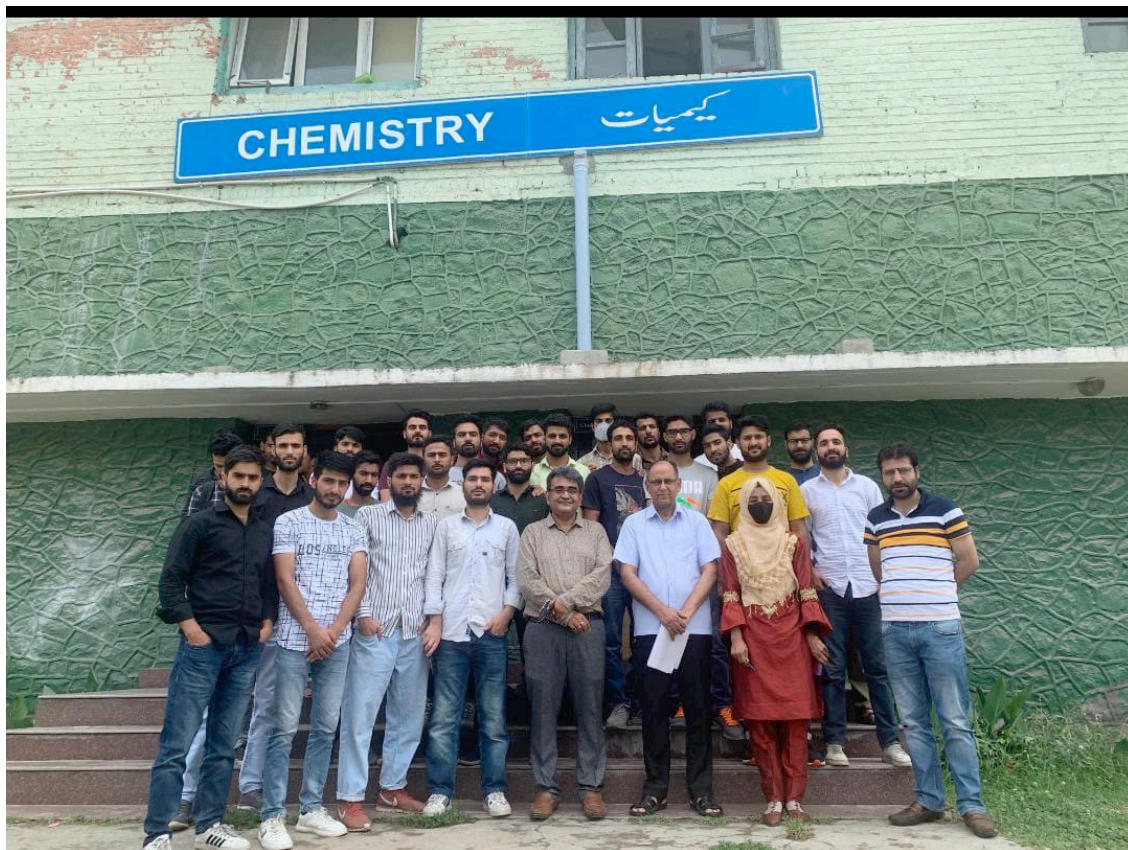
3rd international conference on Crystal Engineering From Molecule to Crystal (CE:FMC-2022) held at Pahalgam, Jammu and Kashmir.



Extension lecture by Dr.Biswal Bishnu at Department of Chemistry University of Kashmir.



Extension lecture by Prof. Prasenjith Ghosh at Department of Chemistry University of Kashmir.



Extension lecture by Prof. Rajnesh Mishra at Department of Chemistry University of Kashmir.



Chemistry camp held by Department of Chemistry, University of Kashmir organised by RSC.

Yusuf Hamied Chemistry Camp

**12-14 September, 2023
Department of Chemistry
University of Kashmir**



**Chemistry magic camp held at Jawahar navodaya vidyalaya hatbora
Ganderbal-2023.**



Webinar series held at the Department of Chemistry University of Kashmir.

**Department of Chemistry
University of Kashmir**

Hazratbal Srinagar-190006, J&K, India



Webinar Lecture Series

Lecture-1



Sandeep Verma

Secretary, SERB-DST, New Delhi
Prof. Department of Chemistry
IIT Kanpur

Topic

**“Research Projects:
Conceptualization to
Implementation”**

9th, Sept. 2020
Wednesday, 11 AM

Link for Registration:

<https://forms.gle/Z75EHcmEaFfGodnh9>

Organizing Team



Chief Patron:
Prof. Talat Ahmad
HVC, University of Kashmir



Patron/Convener:
Prof. Syed Wajahat Amin Shah
Head, Department of Chemistry



Coordinator:
Prof. Altaf Hussain Pandith
Department of Chemistry



Co-Coordinator:
Dr. Dar, Aijaz Ahmad (IN)
Department of Chemistry

Department of Chemistry University of Kashmir

Hazratbal Srinagar-190006, J&K, India



Webinar Lecture Series Lecture-2



Saleem Kamili, PhD
Chief, Laboratory Branch
Division of Viral Hepatitis
Center for Disease Control &
Prevention,
Atlanta, GA, USA

Topic
“Micro-needle Patch Delivery
of Vaccines and Drugs: Focus
on Hepatitis B Vaccine”

16th, Sept. 2020
Wednesday, 11 AM

Link for Registration:

<https://forms.gle/Uz9rwPh1byHA1tGJ7>

Organizing Team



Chief Patron: Prof. Talat Ahmad
HVC, University of Kashmir



Chair Person: Prof. S. A. Ramshoo
Dean Research, UoK.



Patron/Convener:
Prof. Syed Wajhat Amin Shah
Head, Department of Chemistry



Coordinator: Prof. Altaf Hussain Pandith
Department of Chemistry



Co-Coordinator: Dr. Dar. Aijaz Ahmad (IN)
Department of Chemistry

Department of Chemistry
University of Kashmir
Hazratbal Srinagar-190006, J&K, India



Webinar Lecture Series
Lecture-3



Dr. Rohit Kumar Sharma
Department of Chemistry
Punjab University

Topic
**"1D and 2D NMR
Spectroscopy – Basics and
Applications"**

19th, Sept. 2020
Saturday, 11 AM

Link for Registration:
<https://forms.gle/gPwKJmzrSbkAuiNk9>

Organizing Team



Chief Patron: Prof. Talat Ahmad
H'VC, University of Kashmir



Chair Person: Dr. Nisar A. Mir
Registrar, UoK



Patron/Convener:
Prof. Syed Wajahat Amin Shah
Head, Department of Chemistry



Coordinator: Prof. Altaf Hussain Pandith
Department of Chemistry



Co-Coordinator: Dr. Dar, Aijaz Ahmad (IN)
Department of Chemistry

Department of Chemistry University of Kashmir

Hazratbal Srinagar-190006, J&K, India



Webinar Lecture Series

Lecture-4



Prof. C. M. Reddy

**Indian Institute of Science
Education and Research
(IISER)-Kolkata**

Topic

"The Story of Unwanted Crystals"

22nd, Sept. 2020
Tuesday, 11 AM

Link for Registration:

<https://forms.gle/z6z2jo1r2FkMkoEr9>

Organizing Team



Chief Patron: Prof. Talat Ahmad
H'VC, University of Kashmir



Chair Person: Prof. Rais Qadri
Dean Students welfare, UoK,



Patron/Convener:
Prof. Syed Wajahat Amin Shah
Head, Department of Chemistry



Coordinator: Prof. Altaf Hussain Pandith
Department of Chemistry



Co-Coordinator: Dr. Dar, Aijaz Ahmad (IN)
Department of Chemistry

Department of Chemistry University of Kashmir

Hazratbal Srinagar-190006, J&K, India



Webinar Lecture Series Lecture-5



Dr. Vijay Raina

**Senior Director at Nektar
Therapeutics, Hyderabad
(R&D Unit of Nektar, U.S.A.)**

Topic

“Role of Bio-Analysis in Drug Discovery”

**26th, Sept. 2020
Saturday, 11 AM**

Link for Registration:

<https://forms.gle/QcZDe6pzaXBT4Hda8>

Organizing Team



Chief Patron: Prof. Talat Ahmad
HVC, University of Kashmir



Chair Person: Prof. Mohi-Ud-Din Sangmi
Dean College Development Council.



Patron/Convener:
Prof. Syed Wajahat Amin Shah
Head, Department of Chemistry



Coordinator: Prof. Altaf Hussain Pandith
Department of Chemistry



Co-Coordinator: Dr. Dar, Aijaz Ahmad (IN)
Department of Chemistry

Department of Chemistry University of Kashmir

Hazratbal Srinagar-190006, J&K, India



Webinar Lecture Series Lecture-6



Prof. Farukh Arjmand
Department of Chemistry
Aligarh Muslim University

Topic
**"Metal-Based Potent
Anticancer New drug
Entities"**

30th, Sept. 2020
Wednesday, 11 AM

Link for Registration:
<https://forms.gle/g35d1ZTgyTtNFdRf6>

Organizing Team



Chief Patron: Prof. Talat Ahmad
H'VC, University of Kashmir



Chair Person: Prof. S. A. Ramshoo
Dean Research, UoK.



Patron/Convener:
Prof. Syed Wajahat Amin Shah
Head, Department of Chemistry



Coordinator: Prof. Altaf Hussain Pandith
Department of Chemistry



Co-Coordinator: Dr. Dar, Aijaz Ahmad (IN)
Department of Chemistry

Department of Chemistry University of Kashmir

Hazratbal Srinagar-190006, J&K, India



Webinar Lecture Series

Lecture-7



Dr. Anoop Ayyappan
Indian Institute of
Technology- Kharagpur

Topic
**"Exploring Reactions
and Modeling Nanoclusters"**

7th, Oct. 2020
Wednesday, 11 AM

Link for Registration:
<https://forms.gle/Bxg9h3n1iQzCt6q78>

Organizing Team



Chief Patron: Prof. Talat Ahmad
HVC, University of Kashmir



Chair Person: Prof. M. Y. Peerzada
Director Colleges J&K, Dean Academic
Affairs, Cluster University, Srinagar



Patron/Convener:
Prof. Syed Wajhat Amin Shah
Head, Department of Chemistry



Coordinator: Prof. Altaf Hussain Pandith
Department of Chemistry



Co-Coordinator: Dr. Dar. Ajaz Ahmad (IN)
Department of Chemistry