

Vikash Meghwal

4th Year Undergraduate

Dual degree: Bachelor-Masters in Chemistry

Indian Institute of Technology, Kanpur

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Educational Qualifications

Year	Degree/Certificate	Institute	CPI/%
2019 - Present	B.S-M.S (Chemistry)	Indian Institute of Technology, Kanpur U.P.	8.2/10.0
2018	CBSE-XII	Lawrence and Mayo Public School, Ajmer Raj.	71.8%
2016	JKBOSE-X	Bharti Public High School, Jammu and Kashmir	82.8%


SURGE Program (Summer Research Intern)

Professor: Dr. Pratik Sen, Biophysical Chemistry Research Group, Dept. of Chemistry, IIT Kanpur
Lab Project  Website May'23-July'23

Title: Elucidation of the Structure and Dynamics of Synergistic Mixed Solvent Systems.

Learning Work: This research project focuses on investigating the structure and dynamics of synergistic mixed solvent systems through distillation, NMR spectroscopy, and data analysis. Strong analytical skills, effective communication, and collaborative approach to research.

Undergraduate Research Project

1. Supervisor: Dr. Nagma Praveen Research Group, Chemical Biology (Bio-Nanoparticle Lab), Dept. of Chemistry, IIT Kanpur | *Lab Project*  Lab-Members Jan-May'22

Objective: Studying the SARS-CoV-2 fusion in detail using an opportunistic model for the fusing of the coronavirus membrane. Receptor binding and priming of the spike protein of SARS-CoV-2 for membrane fusion.

Future Work: To create medicines for human consumption and vaccines to combat infections and disease. And use this knowledge to create nanoparticle medicines and enough adoptable vaccines.





Learning from lab: Viruses and Binding fusion in SARS-MERS Covid

2. Supervisor: Professor Pratik Sen Research Group, Biophysical Chemistry, Dept. of Chemistry, IIT Kanpur | *Lab Project*  Website Jan'23-Present'23

Title: Role of Hydrophobicity in Synergistic Solvation.

Learning from lab: Purification of Organic Solvent, NMR Technique, Vacuum Distillation, Use of Lab Equipment.

Self-Project

- Personal Website: Angular (a web framework), Electron Js, and web development tools were used.  Project
- Using Android-studio, created a Server and Client application that enables the storage of data on the Google Fire-base Framework.  Server  Client
- Using Electron Js, created a desktop application that assists students in managing academic data. Used HTML, CSS, and Java-script in the frontend and backend of the application.  Electron
- Using Flutter, created a bill-paying Calculator in the restaurant, which also facilitates in tipping.
- Created a Telegram and WhatsApp Chatting bot on Replit.

Project Work

- **Cantilever ToolBox:** Dr. Anish Upadhyaya is the COURSE INSTRUCTOR for TA201-P. Dr. Anil Kumar Verma, LAB & COURSE in CHARGE Anish Upadhyaya, M.D. Dr. Amarendra K Singh is a tutor. We worked on the manufacturing process, as well as designing the structure and components of the ToolBox. We have 9 members in our team. I also created a 3D model of the box in the Fusion360 Designing Tool, and I finalised the cost of the manufacturing process with two other members. It was a group effort.

Technical Skills

Languages: Fortran Programming, Python, C/C++, HTML/CSS, L^AT_EX, Markdown

Frameworks: Electron, React, Node.js, Angular

Developer Tools: Git, VS Code, Visual Studio, Sublime Text Editor, Jupiter Notebook, Colab

Android Development: Android Studio, Flutter, Kotlin, and Postman API

Operating System/ Terminal: Knowledge of Unix/Linux or Windows environments and APIs, CMD, Power Shell

Other: Fusion360, PowerPoint, Adobe Photoshop, MS-Word, Adobe Illustrator, Auto CAD, Overleaf, MongoDB, GNU Plot, Linux Shell, Avogadro, Orca.

Participation: Advances in Spectroscopy, Catalysis, and Synthesis Online Event from the Indian Institute of Technology Kanpur during the summers of 2021.

Research Interest

Molecular Modelling and Energy Determination and Stability with DFT Techniques, Bio Inorganic, Physical Chemistry, Experimental Studies, Perovskite, Nanocrystals, Polymers, Bio-materials, Inorganic Chemistry, Genetic Material Nanotechnology and Nano-particles, Spectroscopy, Pericyclic Reaction, Asymmetric Synthesis, Natural Product Synthesis, Chromatography, TLC, HPLC, Retrosynthesis, Viruses, Nanoparticles and the Industrial Production of Perfumes and fragrances.

Relevant Courses

Physical Photo Chemistry	Physical Chemistry	Numerical Methods
Bio-electricity	Inorganic Chemistry	Frontiers in Organic Chemistry
Introduction To Economics	Elements of Visual Representation	Psychology of Well-being
Thermodynamics	C Programming	Intro. To Electronics
Basic Organic Chemistry (I & II) and General Chemistry	Linear Algebra and Ordinary Differential Equation	Technical Arts (Manufacturing Process I/II) 201-202

Achievements

Secured a rank in JEE Advanced 2019 among 2,40,000 JEE Main qualified aspirants.

Part of the **1%** of students chosen from **1 million applicants** for admission to India's premier educational institutions, the **IITs**.

Honors and Awards

It's a Science Exhibition in January 2016. Hydraulic Pressure is the project's name. (2015) I won first place in the District Level Exhibit. Then I was chosen for a state-level science project. And then I went to Kashmir (Bemina, Srinagar) for a state-level project, for which I received a cash reward bonus from the government.

Extra-Curricular

- **Volunteer — Ritambhara — Antaragni, IIT Kanpur, 2019:** Assist the Senior Secretary in organizing an event while Antaragni, Pearl Academy Delhi, and other team members visit the campus. Volunteered for the Hospitality wing of Antaragni-IIT Kanpur's annual cultural fest, where more than 600 people need to stay.
- **Secretary — Ritambhara — Antaragni, IIT Kanpur, July'20 - Oct'20:** Prepared a database of various fashion giants and We contacted them and convince them to sponsor our event. Contacted various colleges and their fashion societies and increased the participation in the event.
- **Senior Secretary Chess Club — IIT Kanpur, April'20 - April'21:** Organizes chess tournaments for the campus community. Conducted various events on Lichess
- **Techkriti RoboGames Senior Executive IIT Kanpur, 2020-21:** Prepared a database of various colleges and contact them as well as convince them to Participate in the RoboGames —RoboCaAD— Manoeuvre using abstract calling.
- **Council Secretary Exhibition— IIT Kanpur, 2021-22:** Responsibility for Exhibition Planning and Execution