

# AMBER SINGH

Junior Undergraduate -Chemical Engineering

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## ACADEMIC QUALIFICATIONS

Year	Program	Institute	Performance
2021 - Present	B.Tech.(Chemical Engineering)	Indian Institute of Technology Kanpur	7/10
2021	Class XII (CBSE)	Shivalik School, Agra	90%
2019	Class X (CBSE)	Shivalik Cambridge College, Agra	98%

## ACADEMIC ACHIEVEMENTS

- Cracked **KVPY** Stage 1 exam in the SA stream , organised by **IISC Bangalore** and qualified for the interview round. 2020
- Cleared **National Talent Search Examination** stage 1 conducted by **NCERT** , Government of India. 2019

## KEY PROJECTS

**Full Stack Development** | *Association For Computing Activities, IIT Kanpur* | 🌐 May'22-Jul'22

- Developed a dynamic web page using **HTML**, **CSS**, and **JavaScript**, incorporating interactive features and responsive design principles.
- Implemented front-end and back-end using frameworks and libraries like **Node.js**, and **Express.js** and used **Git CLI** for version control.
- Deployed web applications on **Heroku**, integrating **MailChimp** for efficient database management and utilized **API** calls for data exchange.

**SimuTech: Machine Learning** | *Chemineer Society, IIT Kanpur* | 🌐 Dec'22-Feb'23

- Acquired in-depth expertise in **Regression** and **Classification** techniques, including their probabilistic interpretations and modeling strategies.
- Learnt about **logistic regression** and **GLMs**, while also comprehending the operational principles of **K-means clustering algorithms**.
- Built Neural Networks using the **TensorFlow** framework to predict accurate results from the Air Quality data set obtained from **Kaggle**.

**Number Theory And Cryptography** | *Stamatics, IIT Kanpur* | 🌐 Apr'22-Jul'22

- Applied Number Theory principles to cryptographic problems and implemented related algorithms using C++ programming language.
- Gained a thorough understanding of classical cryptographic techniques, including the **Caesar Cipher**, as well as advanced encryption methods such as the **RSA** public key cryptosystem and the **Diffie-Hellman Key** Exchange protocol, used for **secure** private key exchange.

**Blast Off** | *Astronomy Club, Science and Technology Council, IIT Kanpur* | 🌐 Aug'22-Nov'22

- Applied **Pareto Dominance** to the **MOGA** modelling of the rocket to find the optimum point with maximum payload and minimum cost.
- Implemented **the Genetic Algorithm** to generate high-quality solutions to optimization and search problems concerning the rocket model.
- Learnt about various propulsion systems, orbital dynamics and modeled our own rocket from scratch using **Python** and **OpenRocket**.
- Compiled a detailed and reproducible report and designed a captivating **Poster** on **canva**, collaborating with other mentees.

**Bank Management System**| *Self Project* | 🌐 Jun'23

- Built a Bank Management system using **Object Oriented Programming** in C++, facilitating the creation and deletion of bank accounts.
- Leveraged the principles of **Encapsulation**, **Inheritance**, and **file handling** to design and implement account and bank classes.
- Created a dynamic system incorporating the essential functionality of balance enquiry, deposit, withdrawal, and displaying all accounts.

**Virtual Chemical Company**| *Course Project* | 🌐 Jan'23-Apr'23

- Collaborated with a **14**-member team to establish a **virtual** chemical company and identify **high-value** chemicals suitable for production.
- Developed an extensive **EHS report**, identified safety concerns and estimated the waste generation associated with the patented chemicals.

## TECHNICAL SKILLS

Programming	Libraries	Utilities
C,C++,Python, JavaScript	ReactJS,Numpy,Pandas,Seaborn, Matplotlib, Scikit-Learn	MATLAB,NodeJS,Git, bash, L <sup>A</sup> T <sub>E</sub> X

## RELEVANT COURSES

<b>ESC101</b> Fundamentals Of Computing <b>ECO101</b> Introduction to Economics <b>ESO201</b> Thermodynamics <b>CHE251</b> Chemical Processes Supervised Machine Learning,Coursera	<b>MTH102</b> Linear Algebra and ODE <b>CGS401*</b> Introduction to Cognitive Science <b>CHE221</b> Chemical Engineering Thermodynamics <b>CHE211</b> Fluid Mechanics & applications <b>MTH101</b> Real Analysis and Multivariable Calculus	<b>ESO208</b> Computational Methods in engineering <b>ESC201</b> Introduction to Electronics <b>CHE261</b> Chemical Process Industries <b>ESO205*</b> Nature and properties of materials  <div><i>*(ongoing)</i></div>
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## POSITIONS OF RESPONSIBILITY

**Organizer, Events** | *Udghosh, IIT Kanpur* Jun'23-Present

<b>Leadership</b>	<ul style="list-style-type: none"><li>Leading a team of <b>30+ undergraduates</b> to ensure smooth conduction of formal and informal events of the sports fest.</li><li>Part of a 15 member organizer team responsible to envision, plan and organize various prefest events like Chess and E-sports.</li><li>Led senior executives' visits to schools, actively encouraging participation and fostering engagement.</li></ul>
<b>Management</b>	<ul style="list-style-type: none"><li>Ensured the upkeep of the database and created <b>fixtures</b> for all participating teams in the tournament across various sports.</li><li>Oversaw the smooth and timely execution of both formal and informal events during the fest as well as <b>UNOSQ</b>.</li></ul>
<b>Impact</b>	<ul style="list-style-type: none"><li>Witnessed remarkable increase in reach and <b>unprecedented participation</b> from <b>450+</b> colleges with <b>100K+</b> footfalls.</li><li>Contributed an amount of <b>INR 5 Lac</b> in the budget and witnessed a participation of <b>4000+</b> participants in UNOSQ.</li></ul>

- Worked with **office of Dean of Resources & Alumni** to act as the medium of contact between the student body and alumni.
- Connected over **500+** sophomores with **200+** IIT Kanpur alumni through **“Alumni Buddy Program”** for invaluable career guidance.
- Coordinated effectively with the managers and organized engaging sessions like **“Tips From The Top”** & **“Mock-en-Joy”**, taken by alumni.