



# Amitesh Rana

Roll No.:B21CH039

Chemical Engineering

Minor in Management

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## EDUCATION

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech. (CHE)	Indian Institute of Technology, Jodhpur	6.99	2021-2025
Senior Secondary	CBSE Board	87.4%	2019
Secondary	CBSE Board	83.6%	2017

## EXPERIENCE

### WEYA.AI | ML Research Intern

June 2024 - July 2024 | Remote

- Contributed to end-to-end pipeline development for energy disaggregation, from data collection to model deployment.
- Worked on training CNN models and implemented generative models to achieve state-of-the-art accuracy for NILM tasks.
- Collaborated with the team on product design and execution for clients in Brazil.

## PROJECTS

### • Advanced Photocatalytic Reactor Design and Performance Optimization for Dye Degradation

July 2024 - Dec 2024

- Developed and evaluated **slurry batch** and **immobilized packed bed** reactors for photocatalytic degradation of methylene blue using **TiO<sub>2</sub>**, **Ag/TiO<sub>2</sub>**, **Au@Ag/TiO<sub>2</sub>** and **ZnO** catalysts.
- Conducted **UV-visible spectrophotometry** to assess degradation rates and analyzed the effects of reactor design, catalyst type, and operation conditions on performance.
- Achieved superior degradation rates in the slurry reactor, while the packed bed reactor provided solutions for catalyst recovery and operational stability.

### • Aspen-Simulated Indirect Hydration Process for Ethanol: A Cost Analysis Study

Jan 2024 - Mar 2024

- Designed and simulated an indirect hydration ethanol production process with absorber optimization using **Aspen Plus** and **HYSYS**.
- Conducted a detailed economic analysis with static and dynamic simulations to evaluate process profitability.
- Recommended innovative process enhancements to improve efficiency and output in ethanol plant operations.

### • PID controller design and performance comparison for FOPTD model approximation

Nov 2023 - Dec 2023

- Approximated a third-order plant by employing a First Order Plus Time Delay **FOPTD** model.
- Designed and fine-tuned **PID** controllers for the FOPTD model using diverse tuning methods to enhance control performance.
- Conducted comparative analysis of PID controller performance, providing insights into optimal tuning strategies for dynamic systems. .

## KEY COURSES TAKEN

**Fluid Mechanics , Material and Energy Balance , Thermodynamics, Heat Transfer, Scientific Computations , Plant Design and Economics ,Chemical Reaction Engineering, Unit operations , Chemometrics, Material and Energy Balances.**

## TECHINAL SKILLS

- **Programming:** C, C++, Python, SQL , GO, Solidity, JavaScript, Shell Script / Bash Script
- **Tools:** Aspen Plus, Aspen HYSYS, Git , Jupyter Notebook, Google Colab, JIRA, Excel.
- **Libraries/Frameworks:** Pandas, Numpy, Scikit-learn, Tensorflow, JQuery, React.js, Node.js
- **Web Skills:** HTML, CSS, JavaScript, TypeScript, NextJS, ReactJS, Figma, Django, Flutter, Kotlin, Switch
- **Other Skills:** Finance, Accounting, Management ,UI / UX, Kubernetes, Cloud Computing

## ACHIEVEMENTS

- Ranked 14th out of 4000+ users on **GeeksforGeeks** from college, based on overall coding score.
- Achieved **Master Badge** in Recursion, Dynamic Programming on Coding Ninjas, awarded to only the **Top 0.01** percent of users.
- Successfully reached Flipkart Grid 5.0 and 6.0 Round 2 consecutively