



## Niraj Neupane

CHEMICAL ENGINEER

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📍 Kamal-3, Jhapa  
Nationality: Nepalese

## Education

### High School(2017-2019)

Damak Multiple Campus  
Jhapa

### Bachelor of Engineering, Chemical Engineering(2019- 2024)

Kathmandu University  
Dhulikhel, Nepal

## Skills

Autocad	<div><div></div></div>
Aspen Plus	<div><div></div></div>
Matlab	<div><div></div></div>
Python	<div><div></div></div>
MS Office	<div><div></div></div>
InDesign	<div><div></div></div>
LaTeX	<div><div></div></div>

## Languages

English	<div><div></div></div>
Nepali	<div><div></div></div>
Hindi	<div><div></div></div>
German	<div><div></div></div>

## Interests

Literature  
Outdoor Sports  
Travelling

## Profile

Self motivated recent graduate Chemical Engineer with a keen interest in plant design, safety, quality control and process optimization. Looking for an opportunity to pursue masters in Chemical Engineering. Dedicated to problem-solving, and committed to achieving operational excellence. Adept at leveraging technical expertise to enhance efficiency and contribute to project success. Motivated individual with an eager to apply the academic knowledge to real world problems.

## Projects

### 2020 Activated Charcoal using coconut shell

Activated carbon from coconut shells through chemical activation with Potassium Hydroxide with high density, purity, and durability.

### 2022 Bioethanol from sawdust through Acid Hydrolysis and Fermentation

Bioethanol production involves biomass pretreatment, acid hydrolysis, fermentation and distillation with saccharification for cellulose containing materials.

### 2022 Process Monitoring, Fault Detection and Diagnosis

Fault diagnosis method using LSTM neural network on TEP benchmark. Training with raw process data, LSTM provides accurate fault identification and analysis.

### 2023 Reinforcement Learning for Chemical Process Control

Applied Deep Reinforcement Learning algorithm Deep-Q-Network(DQN) for process control. Reinforcement Learning model was used to control Height of a tank

### 2023 Design and Optimization of a Biogas Upgradation to Biomethane using Sabatier Process

Methanation of Carbon dioxide via the Sabatier process is simulated in Aspen Plus Software. Detailed P&ID along with economic analysis of plant were done.

### 2024 Syngas production optimization from biomass gasification using surrogate model integrated with genetic algorithm

Used Aspen Plus for simulation of kinetic based gasification and enhanced the efficiency of gasification processes through the integration of surrogate modeling, machine learning, and evolutionary optimization techniques.

## Experience

### • Internship at Raj Brewery Pvt. Ltd : 3 Months

- Assisted with various aspects of the brewing process and utilities
- Performed day-to-day activities in quality control laboratory
- Design and create complete Quality Control Lab layout using Autocad
- Created 5S station and maintained 5S in Quality Control Laboratory

## Activities

### • Executive member of Kathmandu University Circle of Noble Chemineers (KUCONC)(2023-2024)

As an executive member, I demonstrated leadership, strategic planning and teamwork, contributing to successful event coordination and organizational growth. Organize the sports week and other club activities.

### • Senior editor , Alchemy 2023

As Senior Editor of the annual magazine, I led content creation, managed editorial processes, and ensured high-quality publications, showcasing strong leadership and editorial skills. I led the Creative Section of the magazine, Enforced grammar standards consistently and ensure the highest quality of contents in the magazine.