

# Niraj Neupane

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## Education

**Kathmandu University (2019-2024)**

Bachelor's Degree in Chemical Engineering

**Dhulikhel, Nepal**

3.57/4.0

## Work Experience

**Raj Brewery**

Internship

**Nawalparasi, Nepal**

Jan 2024 – Apr 2024

- 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,

## Research Experience

**2022**

**Process Monitoring, Fault Detection and Diagnosis**, Kathmandu University

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**, Kathmandu University

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**, Kathmandu University

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**, Kathmandu University

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.

## Technical Skills

**Programming:** Machine Learning, Python, C, C++

**Software:** Aspen Plus, AutoCAD

**Engineering:** P&ID, Processing Modelling, Process Control, Techno-economics

**Others:** LaTeX, MS Office, Canva, Adobe Indesign

## Activities

**Executive member of Kathmandu University Circle of Noble Chemineers (KUCONC), Kathmandu University**

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.

## Languages

English	Nepali	Hindi	German
Bilingual Proficiency	Native	Fluent	Beginner