

BENJAMIN J. KENNEDY

PROCESS ENGINEER - Process Simulation, Process Safety & Pipeline Hydraulics

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SKILLS

- **Programming Languages:** Python, SQL, MATLAB—used in simulations, data analysis, and automation.
- **Simulation & Process Tools:** Aspen HYSYS, VMGSim, Unisim, ProMax, PVTsim, and process design.
- **Process Safety & Standards:** MOC, PHA, HAZOP, LOPA, ISO 9001/14001/29001, ASME/API regulatory.
- **Equipment & Hydraulic Design:** HTRI, Flarenet, PFD/P&ID drafting, pipelines, control valves, pumps.
- **Project & Data Tools:** MS Project, SAP ERP, Power BI (dashboards), and Lean Six Sigma Green Belt.

WORK EXPERIENCE

Graduate Engineering Trainee

September 2021 – August 2022

Chennai Petroleum Corporation Limited

India

- Simulated refinery units in Aspen HYSYS by calibrating thermodynamics models, properties, unit operations, convergence parameters, recycle ratios, and predictive analytics, also improving integration accuracy by 38.6%.
- Drafted and revised 25+ PFDs and P&IDs through Smart Plant P&ID integrating valves, pressure drops, control loops, flanged fittings, process equipment, and legend conventions, reducing documentation errors by 61.4%.
- Computed equipment capacity using fluid mechanics models, Bernoulli equations, different head loss, energy balances, pump sizing, NPSH, and pipeline slopes to resize pipelines, enhancing flow optimization by 43.2%.

Project Intern – Coursework

February 2021

Indian Oil Corporation Limited (IOCL)

India

- Modeled blending operations of lubricants using control volume analysis, mixing rule equations, viscosity gradients, tank recirculation, thermophysical properties, and API gravity, which optimized production rate by 27.3%.
- Audited compliance with ISO 9001, ISO 14001, and ISO 29001 using documentation trails, site inspection, corrective logs, compliance metrics, audit frameworks, and audit checklists, reducing audit violations by 80%.
- Redesigned 7 process units in Aspen HYSYS via stream bifurcation, adjustments, tray optimization, re boiler sizing, column hydraulics, condenser placement, & internal configurations, increasing purity levels by 21.9%.

Engineering Student Intern

May 2019 – December 2019

Oil and Natural Gas Corporation Limited (ONGC)

India

- Evaluated offshore facility layouts using P&ID audits, flare system reviews, deck load assessments, structural integrity, space utilization, platform tie-ins, and weight distribution, which reduced idle footprint area by 24.5%.
- Conducted thermal rating of heat exchangers by applying LMTD method, fouling factors, baffle spacing, layout, velocity calculations, flow mal-distribution, and surface area analysis, enhancing thermal efficiency by 31.7%.
- Converted 12+ upstream process designs into different Aspen HYSYS models, stream tagging, flash separators, liquid draw-offs, unit operations, phase equilibrium, control strategies, & improving yield forecasts by 44.9%.

PERSONAL PROJECTS

Design of Canadian Natural Gas Processing Plant

September 2023 – December 2023

Project Leader

Academic Project

- Simulated a full-scale gas dehydration system using Aspen HYSYS and PVTsim, reducing water content from 113.1 to 7.657 lb/MMSCF, achieving 93.2% removal efficiency in compliance with Alberta pipeline standards.
- Modeled a TEG-based dehydration unit to optimize regeneration efficiency to 96.83%, reducing chemical losses, and thermal stability, moisture control, operational reliability metrics, column hydraulics, and heat integration.

Mackimmie Tower Water Treatment and Reuse Plant

September 2023 – December 2023

Project Manager

- Executed sustainability-driven treatment plant design by integrating rainwater harvesting, grey water reuse, and also membrane filtration technologies aligned 95% with LEED Gold standards for a multi-story academic tower.
- Managed resource allocation using SAP ERP for piping layout, mechanical BOMs, scheduling milestones, energy-efficiency benchmarks, lifecycle costing, and procurement workflows to support real-time cost estimation by 70%.

EDUCATION

Master of Science in Chemical and Petroleum Engineering

September 2022 – April 2024

University of Calgary, Alberta

Bachelor of Technology in Petroleum Engineering and Technology

August 2017 – May 2021

Anna University, India

CERTIFICATIONS

- Oil & Gas Operations – Duke University; Natural Gas – University at Buffalo & SUNY
- COSHH Risk Assessor – IACS; Hazardous Material Worker – University of Utah
- H2S Alive; Confined Space Entry & Monitor – Energy Safety Canada