

FRANK CAPRA

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EXPERIENCE

Process Engineer, *ExxonMobil*, Pasadena, CA

May 2023 - Present

- Improve the performance of a major gasoline-producing unit, supporting several refinery efficiency projects.
- Coordinate with operations, maintenance, and control room teams to find and fix production bottlenecks.
- Build and test process changes in Aspen software to confirm they meet production needs and stay within budget.
- Prepare updated drawings, process balances, and safety review materials for engineering and operations teams.
- Improve energy use, heat recovery, and overall unit performance, contributing to an 8 percent efficiency gain.
- Review daily unit trends, alarm reports, and process upsets to identify early signs of equipment or control issues.

Chemical Engineer, *Dow Chemical*, Pasadena, CA

Jun 2020 - May 2023

- Designed improvements for reactor systems used in making polyethylene, including equipment and piping updates.
- Worked with operators, technicians, and quality staff to support plant troubleshooting and improvement work.
- Helped reduce off-spec material by improving temperature control and adjusting process timing.
- Trained junior engineers on simulation basics, equipment sizing, and creating clear engineering drawings.
- Reviewed plant data to track reactor stability, cycle times, and product quality trends.
- Supported management of change (MOC) paperwork for equipment repairs and small design changes.
- Assisted with equipment sizing checks, pump/hydraulics calculations, and simple heat-transfer estimates.
- Performed field verification of piping and instruments to confirm as-built conditions for new designs.

Process Engineering Co-op, *3M*, Pasadena, CA

May 2018 - Jun 2020

- Improved reliability in adhesive manufacturing by updating maintenance schedules and solving production issues.
- Increased reactor yield by testing different temperature, pH, and catalyst settings.
- Supported safety inspections by identifying issues, documenting findings, and helping complete required fixes.
- Helped keep production on target by resolving quality problems quickly with engineers and lab staff.
- Wrote batch records, operating procedures, and investigation reports to improve documentation and troubleshooting.
- Monitored daily batch data to spot unusual trends in conversion, viscosity, or reaction time.
- Helped run small pilot-scale trials to test new process settings and record results.

EDUCATION

BSChE, *California Institute of Technology*, Division of Engineering and Applied Sciences (EAS)

May 2018

SKILLS

- **Process Engineering:** Aspen Plus, Aspen HYSYS, ChemCAD, PRO/II, Distillation Column Design, Reactor Design
- **Analysis:** MATLAB, Python, Excel, Minitab, PI System, JMP