IRVING JOSUÉ CORTÉS ITURRIAGA
PROCESS ENGINEER

https://www.irvingjosue.com | contact@irvingjosue.com

PROFESSIONAL SUMMARY

Process Engineer with 10+ years of experience in process design, detailed engineering, and commissioning for Food & Beverage and industrial facilities. Specialized in hydraulic design, CIP systems, and development of PFDs and P&IDs, with strong involvement in turnkey projects from conceptual design to startup. Experienced in engineering automation and development of custom tools to improve design efficiency, documentation, and project execution. Currently pursuing Lean Six Sigma Green Belt to enhance process optimization and engineering performance.

CORE COMPETENCIES

- Process Design & Engineering
- PFD & P&ID Development
- Hydraulic Analysis & Equipment Sizing
- CIP Systems Design (Clean-in-Place)
- Commissioning & Startup Support
- Turnkey Projects Execution
- Sanitary Design (Food & Beverage)
- Engineering Calculations & Technical Documentation
- Process Optimization (Lean Six Sigma – In Progress)

WORK EXPERIENCE

Tetra Pak México - *Process Engineer*
Cuautitlán Izcalli, Mexico | *May 2022 – Apr 2024*
- Developed process design solutions and pre-projects for dairy and beverage plants, supporting turnkey project execution.
- Performed equipment specification, hydraulic calculations, and process validation aligned with client and industry requirements.
- Generated and reviewed process documentation, including PFDs and P&IDs, ensuring technical accuracy and consistency.
- Supported commissioning and startup activities, ensuring proper system performance and compliance with design specifications.

Proisan - *Process Engineer*
Tlalnepantla & Zapopan, Mexico | *Apr 2021 – Apr 2022*
- Designed and implemented UV water treatment systems for industrial process applications.
- Designed CIP (Clean-in-Place) systems, ensuring sanitary compliance and operational efficiency.
- Executed improvements to existing process systems, optimizing performance and reliability.
- Provided field support during installation, validation, and system startup.

Rapsi - *Process Engineer*
Naucalpan, Mexico | *Apr 2015 – Apr 2020*
- Designed CIP systems, syrup rooms, and process skids for beverage and food processing plants.
- Performed hydraulic analysis, equipment sizing, and piping design for process systems.
- Developed PFDs, P&IDs, and technical documentation for detailed engineering deliverables.
- Supervised mechanical installation and supported commissioning and startup activities.
- Ensured compliance with sanitary design standards and client specifications.

CTYOP - *Process Engineer*
Villahermosa & Minatitlán, Mexico | *Jan 2011 – Nov 2014*
- Performed basic and detailed engineering for process units, oil separators, and pilot plants.
- Developed PFDs, P&IDs, and 3D models for process facilities.
- Prepared technical documentation, including equipment lists, line lists, and engineering calculations.
- Supported multidisciplinary coordination during design and project execution phases.

SELECTED PROJECTS

- Process design and engineering of a syrup room (66,000 L capacity), including equipment sizing, hydraulic calculations, and integration with CIP systems.
- Designed and engineered a syrup room (50,000 L capacity) with manual operation, including CIP system design and process validation.
- Developed process design for a sulfuric acid pilot plant, focusing on process safety and operational control.
- Designed a dosing system for fish oil integration in beverage production, ensuring accurate flow control and process stability.
- Developed fire protection process systems for crude oil separation units, aligned with industrial safety standards.
- Designed and implemented UV water treatment systems for multiple beverage manufacturing plants.
- Led process design and commissioning of a tomato sauce production plant (9,500 kg/h), including process integration and equipment specification.

ENGINEERING SOFTWARE & AUTOMATION TOOLS

- Developed a centrifugal pump sizing tool with automated calculation reports and detailed engineering justification.
- Created hydraulic analysis software for piping systems, improving calculation accuracy and design validation.
- Developed piping sizing tools based on hydraulic and process parameters to support engineering design.
- Built CIP system sizing tools to standardize cleaning system design and improve consistency across projects.
- Developed automation tools for engineering documentation, enabling simultaneous updates across multiple deliverables and reducing manual effort.
- Created cost estimation and quotation tools, improving accuracy, standardization, and efficiency in project proposals.
- Developed advanced tools for P&ID and 3D modeling, including automatic tag generation, duplicate detection, and material take-offs.

TECHNICAL SKILLS

Process Engineering:

- Process design and engineering
- PFD and P&ID development and review
- Equipment sizing (pumps, tanks, piping systems)
- Hydraulic analysis and pressure drop calculations
- CIP (Clean-in-Place) systems design
- Sanitary process design (Food & Beverage industry)

Engineering Design & Documentation:

- Development of line lists and equipment lists
- Preparation of technical documentation and operating philosophies
- Preparation of sequence diagrams and operation manuals
- Engineering calculations and process validation

3D Modeling & Drafting:

- Isometric drawings and 3D modeling
- Piping design according to specifications
- Material take-offs from 3D models

Field Engineering & Execution:

- Field inspection and supervision
- Mechanical installation support
- Commissioning and startup support
- Operator training and evaluation
- Sanitary welding inspection

Standards & Practices:

- Sanitary design principles for food processing systems
- Industrial safety considerations in process design

CERTIFICATIONS

Lean Six Sigma Green Belt — In Progress (Expected April 2026)
- Focus: process optimization, root cause analysis, continuous improvement, PDCA methodology

Lean Six Sigma Yellow Belt — Certified
- Process improvement tools: PDCA, Ishikawa (Fishbone), Pareto analysis, 5 Whys
- Lean fundamentals: waste identification (7+1 wastes), 5S, visual management

Lean Six Sigma White Belt — Certified
- Foundations of continuous improvement and PDCA system

EDUCATION

Instituto Tecnológico de Minatitlán — B.S. Chemical Engineering (Process Specialty) 2004 – 2009
Professional project: “Dynamic Simulation of the Solvent Recovery System” at PEMEX Morelos Petrochemical Complex (Coatzacoalcos, Veracruz)

COURSES

- Good Manufacturing Practices (GMP) for Food Industry
- Sanitary Welding Inspection
- Thermal Energy Management
- Work at Heights Supervisor
- Leadership & Empowerment