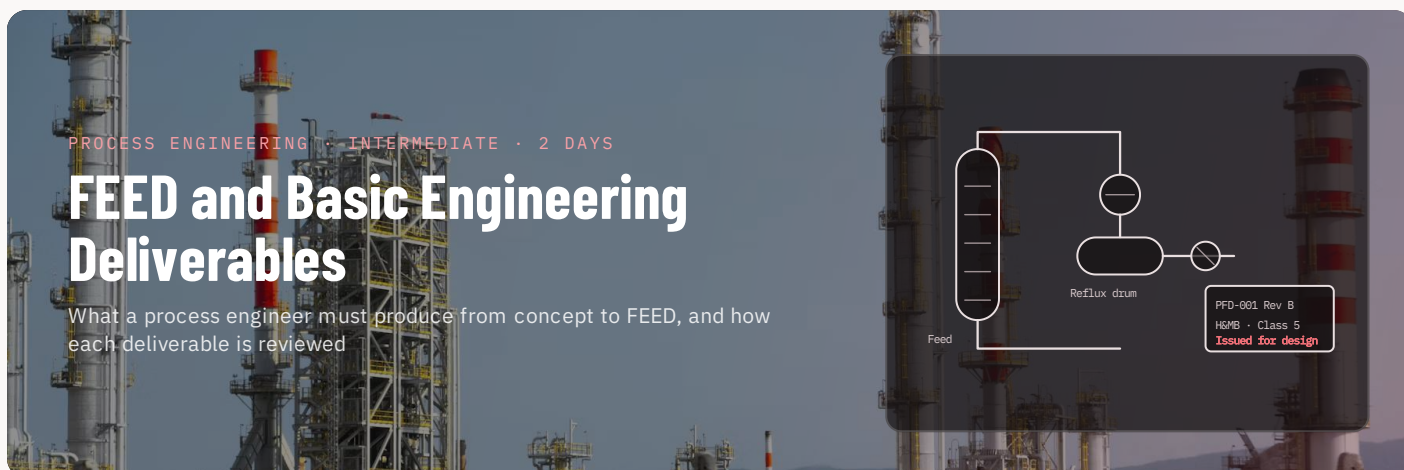




PROCESS ENGINEERING · INTERMEDIATE · 2 DAYS

# FEED and Basic Engineering Deliverables

What a process engineer must produce from concept to FEED, and how each deliverable is reviewed

**DURATION**  
2 days

**LEVEL**  
Intermediate

**FORMAT**  
On-site classroom · virtual instructor-led

**LANGUAGE**  
English

**MAX. PARTICIPANTS**  
16

**30+**

deliverables mapped to project phase

**1**

FEED package reviewed

**4**

estimate classes explained

## Overview

A FEED package sets the cost, the schedule and most of the safety of the plant for the next thirty years, and the engineers writing it rarely get to see how it is used. This course walks the process deliverables in the order they are developed — design basis, simulation, PFDs, heat and material balances, equipment lists, data sheets, P&IDs, line lists, safeguarding — with the interfaces to other disciplines and the review gates each must pass. Participants review a real FEED package extract and produce a deficiency list.

## Learning outcomes

- Define the scope and content of concept, pre-FEED and FEED phases and the estimate class each supports
- Write a design basis that fixes feed, product, utility and site conditions before simulation starts
- Develop PFDs, H&MB and utility summaries with a consistent numbering and revision system
- Produce process data sheets for vessels, exchangers, pumps and compressors that other disciplines can use
- Take P&IDs from IFD to IFH through HAZOP and design freeze
- Review a contractor's FEED package for completeness, consistency and safety content

## Who should attend

Process and project engineers moving into front-end work; owner's engineers reviewing contractor FEED packages; discipline leads coordinating with process

## Course outline

### DAY 1

Project phases and stage gates · estimate classes (AACE 18R-97) and what process must deliver for each · design basis and process design criteria · simulation basis and case definition · PFDs, H&MB and stream tables (ISO 10628) · utility and effluent summaries · equipment list and sizing philosophy

### DAY 2

Process data sheets by equipment type · P&ID development, revision control and hold management · line list, tie-in list, instrument index handover · relief and blowdown philosophy, hazardous area, safeguarding narratives · HAZOP, design review and technical-integrity gates · deliverable schedule and interfaces with piping, instrument and mechanical disciplines · workshop: FEED package review

## Standards referenced

AACE 18R-97 ISO 10628 ISA-5.1 API 521 ASME B31.3  
IEC 61511

## Tools & exercises

Review of an anonymised FEED package; templates for design basis, data sheets and deliverable register

## What's included

- ✓ Course manual and slide pack
- ✓ Software access for the course
- ✓ Post-course Q&A with the instructor
- ✓ Exercise and case-study pack
- ✓ Competency quiz and certificate
- ✓ Templates used in the exercises

### PREREQUISITES

Two or more years of process engineering experience

### CERTIFICATION

Certificate of completion

### INSTRUCTORS

Practising engineers — TÜV HAZOP Leader, CCPSC and IEC 61511 Functional Safety certified — with 200+ years of cumulative plant experience.

**Book this course or build a custom curriculum**

On-site at your plant or virtual · in-house groups · competency assessment included

[sales@cerasus.ai](mailto:sales@cerasus.ai) · +974 5506 2743

Cerasus Technologies QFZ LLC · Ras BuFontas Free Zone · Doha, Qatar