CORE CONCEPT

Packaging Line Engineering Course: Filling, Capping, Labelling, Case Packing and Line Efficiency

Packaging Line Engineering Course: Filling, Capping, Labelling, Case Packing and Line Efficiency

Introduction:

Packaging line engineering for filling, capping, labelling, case packing and line efficiency is a 1-week course for engineers, line leaders and maintenance technicians in consumer goods, beverage, pharmaceutical and chemical plants, ending with a Packaging Line Performance Plan for a case plant. Many lines lose output to fill giveaway, loose or overtight closures, mislabelled packs, jammed case packers, starved fillers and slow format changes. Nominees already run, set or maintain packaging machines, and teaching is by inspection walkthrough of machine settings and line data. CoreConcept Training Center delivers this packaging line course.

Course Objectives:

- Set filler type, fill method and checkweigher limits to control fill weight and reduce product giveaway
- Adjust capping heads and verify application and removal torque to secure closures without damaging containers
- Configure labellers, date coders and vision inspection to reject mislabelled or uncoded packs at line speed
- Tune case packers, palletisers and stretch wrappers to cut end-of-line jams and unstable loads
- Design machine speeds and accumulation buffers along a V-curve so the bottleneck machine is never starved or blocked
- Analyse packaging machine stops, minor stoppages and changeover time to build a line performance plan

Target Audience:

- Production engineers responsible for packaging line output and machine settings
- Packaging line leaders responsible for shift performance, changeovers and reject rates
- Maintenance technicians responsible for fillers, cappers, labellers and end-of-line equipment
- Process improvement staff responsible for packaging line loss reduction projects
- Quality technicians responsible for fill weight, closure and code checks on the line

Course Outline:

Day 1: Packaging Line Architecture and Current Line Audit

- Packaging Line Layout Map From Depalletiser to Stretch Wrapper
- Primary, Secondary and End-of-Line Machine Functions Compared
- Rated Speed, Line Speed and Bottleneck Machine Identification
- Packaging Machine Stop Log and Reject Count Review
- Current Line Audit Checklist for a Bottling Line

Day 2: Filling, Fill-Weight Control and Capping

- Volumetric, Gravimetric, Level and Piston Filler Selection
- Net-Weight Filling Valves and Fill Accuracy Setting
- Checkweigher Zone Limits and Filler Feedback Control
- Screw Capper Chuck, Clutch and Torque Setting
- Application and Removal Torque Testing With Tamper Bands

Day 3: Labelling, Coding, Inspection and End of Line

- Wrap-Around, Pressure-Sensitive and Sleeve Labeller Set-Up
- Date Coder and Batch Code Legibility Checks
- Vision Inspection Rules for Label, Cap and Code Rejects
- Wrap-Around, Top-Load and Tray Case Packer Adjustment
- Robotic Palletiser Patterns and Stretch Wrapper Film Settings

Day 4: Line Design, Changeover and Loss Analysis

- V-Curve Speed Profile Design Around the Bottleneck Machine
- Accumulation Table and Conveyor Buffer Sizing Method
- SMED Changeover Separation of Internal and External Tasks
- Format Parts, Guide Rails and Quick-Release Tooling Standardisation
- Minor Stoppage and Speed Loss Pareto per Machine

Day 5: Inspection Walkthrough and Packaging Line Performance Plan

- Case Plant Walkthrough of Filler and Capper Settings
- Case Plant Walkthrough of Labeller and Case Packer Stops
- Changeover Video Review and SMED Action List
- Line Speed and Buffer Redesign for the Case Plant
- Packaging Line Performance Plan Completion and Peer Review

Skills You Will Gain:

- Filler Selection and Set-Up
- Fill Weight Control
- Capping Torque Verification
- Label and Code Inspection
- End-of-Line Equipment Tuning
- V-Curve Line Design
- SMED Changeover Reduction
- Packaging Machine Loss Analysis

Why Attend This Course:

- Deliver a Packaging Line Performance Plan to the plant manager and the engineering lead for approval
- Decide which machine speed, buffer or changeover change to make first on the line
- Avoid fill giveaway, closure complaints, mislabelled packs and pallet collapses that cost output and customers
- Share filler, capper and labeller set-up checklists with shift crews and maintenance colleagues

Conclusion:

Back at work, the participant hands the Packaging Line Performance Plan to the plant manager, the engineering lead and the shift line leaders. They use it to agree machine settings, buffer and speed changes and the changeover actions to run first. After the first month of running to the plan, the plant should compare fill giveaway, reject counts, stop minutes and changeover times with the audit baseline and update the plan and set-up checklists where losses remain.

Frequently Asked Questions FAQ:

What should participants know before a packaging line engineering course on filling, capping and labelling?

Participants should already run, set or maintain packaging machines and read basic line data such as stop logs and reject counts. Bringing a line layout, recent stop data or a changeover record helps them build the performance plan around their own plant.

How does a packaging line engineering course differ from a packaging materials course?

A packaging materials course covers board, films, containers, specifications and transit tests. This course covers the machines that fill, close, label, pack and palletise those containers, and how to design and run the line for output.

Why does a V-curve matter in packaging line engineering?

A V-curve runs machines upstream and downstream of the bottleneck faster than it, with buffers between them, so small stops elsewhere do not starve or block the slowest machine. Without it, line output falls well below the bottleneck rating.

What do participants take back from the packaging line engineering course?

Participants take back a Packaging Line Performance Plan covering filler and capper settings, labelling and inspection checks, end-of-line tuning, speed and buffer design, changeover actions and a loss baseline for their line.