



Fault Tree Analysis (FTA)

New Hire Does Not Last 1 Year as CMP Equipment Technician 2

From Root Causes to Retention — A Safer, Stronger, More Sustainable Team



Purpose

Identify and reduce the causes of early attrition for new CMP Equipment Technician 2 hires through a structured, system-based analysis.



Scope

Newly hired Samsung employee in CMP Equipment Technician 2 role. Includes voluntary exits, performance failures, transfers, and external events within the first 12 months.



Outcome

Employee leaves within 12 months due to:

- Voluntary resignation
- Failed probation or performance
- Transfer or removal from CMP role
- External or personal event

Logic Gate Legend



OR Gate
(Any cause can trigger event)



AND Gate
(All causes must occur)



TOP EVENT

New Hire Does Not Last 1 Year as CMP Equipment Technician 2



A. Employee Voluntarily Leaves

Employee chooses to leave due to dissatisfaction, better opportunities, or personal reasons.



A1
Job Mismatch



A2
Work Conditions



A3
Poor Support



A4
Better Opportunity



A5
Personal Strain



B. Performance / Qualification Failure

Employee does not meet performance, safety, quality, or qualification expectations.



B1
Technical Competency Gap



B2
Safety / Procedure Failure



B3
Work Quality Problems



B4
Attendance / Reliability Problems



C. Transfer, Removal, or Role Displacement

Employee does not remain in the CMP Technician 2 role due to internal or organizational reasons.



C1
Internal Transfer



C2
Qualification Not Completed



C3
Workforce Changes



C4
Role / Assignment Change



D. External or Personal Event

External circumstances force separation independent of job performance.



D1
Health / Injury



D2
Family Emergency



D3
Relocation or Move



D4
Legal / Other Event

Detailed Causes (Basic Events)

A1 Job Mismatch	A2 Work Conditions	A3 Poor Support	A4 Better Opportunity	A5 Personal Strain	B1 Technical Gap	B2 Safety / Procedure	B3 Work Quality	B4 Attendance / Reliability	C1 Internal Transfer	C2 Qualification Not Completed	C3 Workforce Changes	C4 Role Change	D1 Health / Injury	D2 Family Emergency	D3 Relocation or Move	D4 Legal / Other
- Expected different role - More routine maintenance - Complexity higher than expected - Shift expectations not understood - Cleanroom restrictions - Long qualification process - Work less interesting	- Rotating shifts - Physical fatigue - Cleanroom stress - High workload - Repetitive tasks - Overtime - Schedule conflicts - Temperature/PPE discomfort	- No clear mentor - Inconsistent training - Vague feedback - Fear of asking - Team conflict - Left alone early - Incomplete documentation - Poor team culture	- Higher pay - Better schedule - Closer to home - Other semiconductor offer - Clearer advancement - Different career path - Better benefits - Temporary role	- Commute issues - Childcare/family - Housing costs - Financial pressure - Relationship changes - Mental/physical fatigue - Personal obligations	- Weak electrical/mechanical - Limited CMP knowledge - Poor troubleshooting - Cannot read drawings/schematics - Weak PLC/controls - Inadequate tool use - Systems thinking gap	- LOTO non-compliance - Chemical mishandling - PPE violations - Cleanroom violations - Procedure deviations - Bypassing interlocks - Poor documentation - Failure to escalate	- Repeat failures - Incomplete PM - Incorrect repair/parts - Poor verification - Weak documentation - Returns to production too early - Cannot isolate root cause	- Tardiness - Absenteeism - Missed training - Inability to maintain shift schedule - Transportation issues - Excessive leave - Unreliable call-ins	- Transfer to other department - Move to facilities/engineering - More desirable schedule - Pursue different career path	- Missed milestones - Cannot demonstrate independent work - Training stalls - Evaluations below expectations - Remediation unsuccessful	- Headcount reduction - Organizational restructuring - Module consolidation - Shift elimination - Business conditions	- Reassigned to different role - Job expectations change - No clear path to complete qualification	- Serious illness - Work-related injury - Physical limitations - Mental health challenges	- Family crisis - Caregiving responsibilities - Spouse relocation - Personal emergency	- Move out of area - Relocation for family - Housing issues	- Immigration issue - Work authorization - Legal matter - Other unforeseen event

Key AND-Gate Scenarios (Common Failure Paths)



Root Cause Categories

- Person-Job Fit** Expectations differ from reality
- Technical Readiness** Weak fundamentals or CMP knowledge
- Training System** No structured qualification path
- Leadership** Poor coaching or unclear expectations
- Team Culture** Blame, exclusion, poor communication
- Workload / Staffing** Overtime, insufficient coverage
- Shift / Schedule** Rotating shifts, schedule conflict
- Safety / Compliance** Poor procedure discipline
- Career Development** No visible growth path
- Personal / External** Family, health, transportation, relocation

Timeline & Retention Framework



Leading Indicators (Early Warning Signs)

- Training / Technical**
 - Missed milestones
 - Repeated gaps
 - Inconsistent troubleshooting
 - Documentation issues
 - Hesitates to perform tasks
- Engagement / Environment**
 - Expresses dissatisfaction
 - Withdraws from team
 - Reports feeling unsupported
 - Mentions other opportunities
 - Surprised by job expectations
- Reliability / Safety**
 - Tardiness / absenteeism
 - Fatigue-related mistakes
 - Missed training
 - Procedural deviations
 - Fails to escalate issues

Success Metric

- Goal**
- New hire completes 12+ months as a qualified, engaged CMP Equipment Technician 2.
- Safe
 - Competent
 - Reliable
 - Engaged
 - Sees a future