

# **Efficient Equipment Checkout System Test Plan**

## **Version 1.1**

| Version | Date      | Revision Summary                           | Author |
|---------|-----------|--------------------------------------------|--------|
| 2.0     | 4/18/2025 | Adjusted formatting and updated Test Cases |        |
|         |           |                                            |        |

## **1. Introduction**

This test plan outlines the testing approach for the GB Manufacturing Automated Equipment Checkout System (ECS). The primary objective is to improve efficiency by reducing processing time, ensuring data accuracy, enforcing equipment skill classification requirements, and automating notifications and reporting.

## **2. Test Items**

The following items will be tested in the ECS:

- Equipment Checkout Processing Time
- Employee Termination Process
- Returned Equipment Matching
- Skill Classification Enforcement
- Record Accessibility
- Report Generation
- Periodic Transaction Statements
- Identifying Excessive Equipment Losses
- Problem Employee Follow-Up
- Equipment Order Tracking

## **3. Features to Be Tested**

- Automated data entry using manual input fields (no barcode scanning).
- Real-time validation of skill classifications for equipment checkout.
- Automated notification system for equipment orders and overdue items.
- System-generated exception reports for excessive equipment losses.
- Quick retrieval of employee and equipment records.
- Integration with a MySQL database for tracking and reporting.

## 4. Features Not to Be Tested

- User manual and help documentation.
- Mobile or platform-specific functionality outside the core system.

## 5. Approach

Testing will be performed in the following stages:

1. Unit Testing – Individual components (login, equipment search, checkout).
2. Integration Testing – Interaction between modules (search, checkout, record updates).
3. System Testing – Full system validation against expected behavior.
4. Acceptance Testing – Verification against end-user requirements.

## 6. Pass/Fail Criteria

| Test Item                          | Pass Criteria                                                            | Fail Criteria                                           |
|------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------|
| Equipment Checkout Processing Time | Completes in < 2 minutes with accurate DB update                         | Takes ≥ 2 minutes or incorrect status recorded          |
| Employee Termination Process       | Checks for all equipment returned and account deactivated in < 2 minutes | Unable to verify equipment status or delays ≥ 2 minutes |
| Returned Equipment Matching        | Correct employee-equipment match in < 30 seconds                         | Mismatch or delay ≥ 30 seconds                          |

| Test Item                        | Pass Criteria                                       | Fail Criteria                           |
|----------------------------------|-----------------------------------------------------|-----------------------------------------|
| Skill Classification Enforcement | Doesn't allow for equipment to be checked out       | Allows checkout without validation      |
| Record Accessibility             | Retrieves employee/equipment records in < 5 seconds | Timeout or incorrect data returned      |
| Report Generation                | Accurate report generates in < 5 seconds            | Missing data or delay ≥ 5 seconds       |
| Transaction Statements           | Ability to track transactions and generate report   | Missing data                            |
| Excessive Equipment Losses       | Generate Report showing all losses                  | Misses lost equipment                   |
| Problem Employee Follow-Up       | Logs all actions with timestamps in audit trail     | Missing entries or incorrect timestamps |

## 7. Suspension Criteria

Testing will be suspended if:

- Major defects prevent further testing.
- Critical system components are unavailable.

## 8. Test Deliverables

- Test plan document
- Test cases document
- Test execution results
- Test summary report

## 9. Testing Schedule

| Phase                        | Start Date | End Date |
|------------------------------|------------|----------|
| Test Planning                | [Date]     | [Date]   |
| Test Case Development        | [Date]     | [Date]   |
| Test Execution (Unit)        | [Date]     | [Date]   |
| Test Execution (Integration) | [Date]     | [Date]   |
| System Testing               | [Date]     | [Date]   |
| Acceptance Testing           | [Date]     | [Date]   |

## 10. Resource Requirements

- Personnel:
  - o Project Manager
  - o Software Developers
  - o End Users
- Software:
  - o Development of tools
  - o Testing frameworks
  - o Bug tracking system
- Hardware:
  - o Servers
  - o Workstations

## 11. Environmental Needs

- Test environment mirroring production.
- Stable network connection.
- Access to ECS database for realistic simulations.

## 12. Risks and Contingencies

| Risk                               | Contingency                                   |
|------------------------------------|-----------------------------------------------|
| High system load slows performance | Optimize transaction handling                 |
| Critical bugs delay release        | Allocate buffer time for fixes and re-testing |

## 13. Test Case

### Test Case 1: Equipment Checkout Processing Time

| Field                   | Details                                                                                                                                                                                     |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Case Creator       | Team Member D                                                                                                                                                                               |
| Tester Name             | [Name]                                                                                                                                                                                      |
| Test Date               | [MM/DD/YYYY]                                                                                                                                                                                |
| Test Identifier         | TC-EC-001                                                                                                                                                                                   |
| Requirements Addressed  | SRS-010                                                                                                                                                                                     |
| Prerequisite Conditions | <ul style="list-style-type: none"><li>• Employee logged in</li><li>• Equipment status = "Available"</li></ul>                                                                               |
| Test Input              | Employee ID: 100, Equipment ID: 50                                                                                                                                                          |
| Expected Test Results   | Checkout confirmation in < 2 minutes; DB status = "Checked Out"                                                                                                                             |
| Evaluation Criteria     | Stopwatch timing; DB verification                                                                                                                                                           |
| Procedure               | <ol style="list-style-type: none"><li>1. Log in as Employee with checkout permissions</li><li>2. Go to equipment checkout page</li><li>3. Submit checkout</li><li>4. Time process</li></ol> |
| Features Tested         | Transaction processing, DB updates                                                                                                                                                          |
| Pass/Fail               | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail                                                                                                                    |

## Test Case 2: Skill Classification Enforcement

| Field                   | Details                                                                                                                                                                            |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Case Creator       | Team Member D                                                                                                                                                                      |
| Tester Name             | [Name]                                                                                                                                                                             |
| Test Date               | [MM/DD/YYYY]                                                                                                                                                                       |
| Test Identifier         | TC-SCE-002                                                                                                                                                                         |
| Requirements Addressed  | SRS-040                                                                                                                                                                            |
| Prerequisite Conditions | <ul style="list-style-type: none"><li>• Employee lacks Advanced skill</li><li>• Equipment requires certification</li></ul>                                                         |
| Test Input              | Employee ID: 20, Equipment ID: 100 (Forklift)                                                                                                                                      |
| Expected Test Results   | Checkout prevented                                                                                                                                                                 |
| Evaluation Criteria     | System blocks checkout with error message                                                                                                                                          |
| Procedure               | <ol style="list-style-type: none"><li>1. Log in and move to Equipment Checkout Page</li><li>2. Attempt to checkout higher skill class equipment</li><li>3. Verify denial</li></ol> |
| Features Tested         | Role-based access control                                                                                                                                                          |
| Pass/Fail               | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail                                                                                                           |

## Test Case 3: Excessive Equipment Loss Identification

| Field             | Details       |
|-------------------|---------------|
| Test Case Creator | Team Member D |
| Tester Name       | [Name]        |

| Field                   | Details                                                                                                                                                   |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Date               | [MM/DD/YYYY]                                                                                                                                              |
| Test Identifier         | TC-EL-003                                                                                                                                                 |
| Requirements Addressed  | SRS-080                                                                                                                                                   |
| Prerequisite Conditions | <ul style="list-style-type: none"> <li>Database tracking equipment loss</li> </ul>                                                                        |
| Test Input              | Generate "Loss Report"                                                                                                                                    |
| Expected Test Results   | System takes from database to compile Loss Report                                                                                                         |
| Evaluation Criteria     | Correct equipment chosen report follows timeline criteria                                                                                                 |
| Procedure               | <ol style="list-style-type: none"> <li>Log in as admin</li> <li>Create a Loss Report</li> <li>System returns lost equipment in set time period</li> </ol> |
| Features Tested         | reporting engine                                                                                                                                          |
| Pass/Fail               | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail                                                                                  |

#### Test Case 4: Skill Classification Enforcement

| Field                   | Details                                                                                                                              |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Test Case Creator       | Team Member D                                                                                                                        |
| Tester Name             | [Name]                                                                                                                               |
| Test Date               | [MM/DD/YYYY]                                                                                                                         |
| Test Identifier         | TC-PTS-004                                                                                                                           |
| Requirements Addressed  | SRS-040                                                                                                                              |
| Prerequisite Conditions | <ul style="list-style-type: none"> <li>Employee lacks skill certification.</li> <li>Prevent checkout of certain equipment</li> </ul> |
| Test Input              | Attempt to checkout equipment outside skill class                                                                                    |
| Expected Test Results   | System stops checkout process                                                                                                        |

| Field               | Details                                                                                                                              |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Evaluation Criteria | Unauthorized checkout prevented                                                                                                      |
| Procedure           | 1. Log in and proceed to checkout page<br>2. Attempt checkout of equipment outside skill class<br>3. Verify system prevents checkout |
| Features Tested     | Role-based permissions, validation logic                                                                                             |
| Pass/Fail           | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail                                                             |

### Test Case 5: Record Accessibility

| Field                   | Details                                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Test Case Creator       | Team Member D                                                                                                                       |
| Tester Name             | [Name]                                                                                                                              |
| Test Date               | [MM/DD/YYYY]                                                                                                                        |
| Test Identifier         | TC-PTS-005                                                                                                                          |
| Requirements Addressed  | SRS-060                                                                                                                             |
| Prerequisite Conditions | <ul style="list-style-type: none"> <li>• Employee/Equipment records exist</li> <li>• User has Record creation privileges</li> </ul> |
| Test Input              | Create equipment record with employee ID                                                                                            |
| Expected Test Results   | Records retrieved in <5 seconds                                                                                                     |
| Evaluation Criteria     | Return matches database and response time acceptable                                                                                |
| Procedure               | 1. Log in and proceed to Generate Reports → Inventory Report<br>2. Create report<br>3. Verify correct record and response time      |
| Features Tested         | Database indexing                                                                                                                   |
| Pass/Fail               | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail                                                            |

## Test Case 6: Report Generation

| Field                   | Details                                                                                                                                                                                                           |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Case Creator       | Team Member D                                                                                                                                                                                                     |
| Tester Name             | [Name]                                                                                                                                                                                                            |
| Test Date               | [MM/DD/YYYY]                                                                                                                                                                                                      |
| Test Identifier         | TC-PTS-006                                                                                                                                                                                                        |
| Requirements Addressed  | SRS-070                                                                                                                                                                                                           |
| Prerequisite Conditions | <ul style="list-style-type: none"><li>• Equipment Transactions exist in system</li><li>• User has Report generation privileges</li></ul>                                                                          |
| Test Input              | Create transaction Report for employee in set time period                                                                                                                                                         |
| Expected Test Results   | Records retrieved in <5 seconds                                                                                                                                                                                   |
| Evaluation Criteria     | Report accuracy and speed                                                                                                                                                                                         |
| Procedure               | <ol style="list-style-type: none"><li>1. Log in and proceed to Generate Reports → Transaction Report</li><li>2. Create report for chosen employee ID</li><li>3. Verify correct record and response time</li></ol> |
| Features Tested         | Report engine, data aggregation                                                                                                                                                                                   |
| Pass/Fail               | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail                                                                                                                                          |

## Test Case 7: Identifying Equipment Losses

| Field                  | Details       |
|------------------------|---------------|
| Test Case Creator      | Team Member D |
| Tester Name            | [Name]        |
| Test Date              | [MM/DD/YYYY]  |
| Test Identifier        | TC-PTS-007    |
| Requirements Addressed | SRS-080       |

| Field                   | Details                                                                                                                                                                                |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prerequisite Conditions | <ul style="list-style-type: none"> <li>At least 3 losses noted in database</li> </ul>                                                                                                  |
| Test Input              | Create Overdue Equipment Report                                                                                                                                                        |
| Expected Test Results   | Records retrieved in <5 seconds                                                                                                                                                        |
| Evaluation Criteria     | Report accuracy and speed                                                                                                                                                              |
| Procedure               | 1. Log in and proceed to Generate Reports → Overdue Equipment Report<br>2. Create report to view overdue/lost equipment and their values<br>3. Verify correct record and response time |
| Features Tested         | Exception Reporting                                                                                                                                                                    |
| Pass/Fail               | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail                                                                                                               |

## Test Case 8: Problem Employee Follow-up

| Field                   | Details                                                                                                                                                                                                         |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Case Creator       | Team Member D                                                                                                                                                                                                   |
| Tester Name             | [Name]                                                                                                                                                                                                          |
| Test Date               | [MM/DD/YYYY]                                                                                                                                                                                                    |
| Test Identifier         | TC-PTS-008                                                                                                                                                                                                      |
| Requirements Addressed  | SRS-090                                                                                                                                                                                                         |
| Prerequisite Conditions | <ul style="list-style-type: none"> <li>Employee has overdue equipment</li> </ul>                                                                                                                                |
| Test Input              | Notification sent to notify of overdue equipment at initial and escalated levels                                                                                                                                |
| Expected Test Results   | Notifications sent and recorded in log                                                                                                                                                                          |
| Evaluation Criteria     | Log entry accuracy and timestamp                                                                                                                                                                                |
| Procedure               | 1. Log in and proceed to Generate Reports → Overdue Equipment Report<br>2. Create report to view overdue equipment and employee tied to them<br>3. Verify notification has been sent out and logged in database |

|                 |                                                                          |
|-----------------|--------------------------------------------------------------------------|
| Field           | Details                                                                  |
| Features Tested | Audit Trail                                                              |
| Pass/Fail       | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail |

## Test Case 9: Equipment Order Tracking

|                         |                                                                                                                                                                            |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Field                   | Details                                                                                                                                                                    |
| Test Case Creator       | Team Member D                                                                                                                                                              |
| Tester Name             | [Name]                                                                                                                                                                     |
| Test Date               | [MM/DD/YYYY]                                                                                                                                                               |
| Test Identifier         | TC-PTS-009                                                                                                                                                                 |
| Requirements Addressed  | SRS-050                                                                                                                                                                    |
| Prerequisite Conditions | <ul style="list-style-type: none"> <li>• Pending order exists</li> <li>• Employee email notifications enabled</li> </ul>                                                   |
| Test Input              | Simulate order arrival                                                                                                                                                     |
| Expected Test Results   | Notification received within 5 minutes                                                                                                                                     |
| Evaluation Criteria     | Notification speed and accuracy                                                                                                                                            |
| Procedure               | <ol style="list-style-type: none"> <li>1. Mark order as received in database</li> <li>2. Monitor inbox for notification</li> <li>3. Verify notification content</li> </ol> |
| Features Tested         | Automated alerts                                                                                                                                                           |
| Pass/Fail               | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail                                                                                                   |

## Test Case 10: Periodic Transaction Statements

|                   |         |
|-------------------|---------|
| Field             | Details |
| Test Case Creator | [Name]  |

| Field                   | Details                                                                                                                                 |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Tester Name             | [Name]                                                                                                                                  |
| Test Date               | [MM/DD/YYYY]                                                                                                                            |
| Test Identifier         | TC-PTS-010                                                                                                                              |
| Requirements Addressed  | SRS-060                                                                                                                                 |
| Prerequisite Conditions | <ul style="list-style-type: none"> <li>• System date = 5th of month</li> <li>• Employee has 3+ transactions</li> </ul>                  |
| Test Input              | Automated statement trigger                                                                                                             |
| Expected Test Results   | Email received by EMP1001 with accurate transaction list                                                                                |
| Evaluation Criteria     | Timestamp ≤ 9:00 AM; all transactions accounted for                                                                                     |
| Procedure               | <ol style="list-style-type: none"> <li>1. Simulate 5th of month</li> <li>2. Monitor EMP1001 inbox</li> <li>3. Verify content</li> </ol> |
| Features Tested         | Automated scheduling, email integration                                                                                                 |
| Pass/Fail               | <input checked="" type="checkbox"/> Pass / <input type="checkbox"/> Fail                                                                |