

## Project: Manufacturing

Functional Requirements	
<b>1. Production Roles (workers, supervisors, managers)</b>	<p>FR1.1 – The system should allow production managers to create and manage production schedules.</p> <p>FR1.2 – Supervisors should be able to allocate production tasks to workers and monitor workflow organization.</p> <p>FR1.3 – Workers should be able to view their assigned daily tasks through the system.</p> <p>FR1.4 – Technicians should be able to record and report machine downtime for management review.</p> <p>FR1.5 – Managers should be able to monitor work orders in real time to track production progress.</p>
<b>2. Maintenance Roles (technicians, maintenance managers)</b>	<p>FR2.1 – Technicians should be able to schedule and manage preventive maintenance tasks to prevent unexpected machine breakdowns.</p> <p>FR2.2 – Workers should be able to report unusual machine behavior (sounds or movements) through the system for early intervention.</p> <p>FR2.3 – Maintenance managers should be able to view machine health reports and analyze performance to reduce downtime.</p>
<b>3. Inventory &amp; Supply Chain Roles (warehouse, procurement, logistics)</b>	<p>FR3.1 – Warehouse staff should be able to record all incoming raw materials and outgoing finished goods to maintain accurate stock levels.</p> <p>FR3.2 – The system should automatically trigger material reorders when stock levels fall below predefined thresholds.</p> <p>FR3.3 – The system should allow storekeepers to track finished goods inventory for shipment preparation.</p> <p>FR3.4 – Logistics managers should be able to generate and manage delivery schedules to ensure timely customer deliveries.</p> <p>FR3.5 – Supplier managers should be able to track and evaluate supplier performance for reliability.</p>
<b>4. Quality Roles (inspectors, QA managers, auditors)</b>	<p>FR4.1 – Quality inspectors should be able to log inspection results and mark defective items.</p> <p>FR4.2 – The system should allow QA managers to generate detailed defect and quality reports to identify recurring issues.</p> <p>FR4.3 – The system should alert workers immediately when defective</p>

	<p>units are detected to stop production promptly.</p> <p>FR4.4 – QA auditors should be able to access and review historical inspection records for compliance verification.</p>
<b>5. Safety &amp; Compliance Roles (safety officers, compliance officers)</b>	<p>FR5.1 – The system should allow safety officers to record and track safety incidents and near-misses for workplace improvement.</p> <p>FR5.2 – The system should integrate with cameras to monitor production areas for unsafe behaviors or hazards.</p> <p>FR5.3 – The system should maintain audit-ready compliance and safety records to meet regulatory inspection requirements.</p>
<h2>Non-Functional Requirements</h2>	
<b>1. Performance</b>	<p>NFR1.1 – The system should respond to most user actions within two seconds.</p> <p>NFR1.2 – It should handle real-time production updates without performance issues, even during peak hours.</p>
<b>2. Reliability</b>	<p>NFR2.1 – The system should maintain an uptime of at least 99.5%.</p> <p>NFR2.2 – Data backups should run automatically several times a day.</p>
<b>3. Usability</b>	<p>NFR3.1 – The interface should be simple, clean, and easy to navigate for users of all skill levels.</p> <p>NFR3.2 – The system should support multiple languages and accessibility options (Arabic, English).</p>
<b>4. Security</b>	<p>NFR4.1 – All users should log in securely using role-based access control.</p> <p>NFR4.2 – Sensitive data must be encrypted during both storage and transmission.</p>
<b>5. Scalability</b>	<p>NFR5.1 – The system should easily scale to support new users, locations, or modules.</p>
<b>6. Maintainability</b>	<p>NFR6.1 – Updates and maintenance should be possible without major downtime.</p> <p>NFR6.2 – The system should maintain detailed activity and error logs to simplify troubleshooting.</p>
<b>7. Compliance</b>	<p>NFR7.1 – The system should comply with manufacturing and data protection standards like ISO 9001 and GDPR.</p> <p>NFR7.2 – All user activities should be logged for audit and traceability purposes.</p>

