MES FOR PROCESS MANUFACTURING
How can a plant monitor, control and optimize real-time production activities to achieve paperless manufacturing?

What is MES?
Process manufacturers today are facing a number of challenges that must be addressed in order to ensure operational and business success: strict industry regulations, product inconsistencies, wasted materials, the need for process maintenance and a lack of process transparency. Industry leaders understand the importance of controlling production capacity, optimizing quality control processes and standardizing information received from their manufacturing facilities in order to provide management the tools needed to compare results and make smarter decisions.

The overall role of the Manufacturing Execution System (MES) in the process manufacturing environment can be broadly described as the adoption of a highly-integrated management information system that uses modern concepts and best-practice technology to monitor work-in-progress during production in order to improve business processes and reduce costs. One of the main strategic advantages of an MES solution is the capture of manufacturing-related data, which is then turned into information that can drive better business decisions and improve throughput, process control, product quality and overall productivity.

Production Execution
» Order management and execution
» Material management
» Tracking and tracing
» Product definition management
» Detailed scheduling
» Asset management
» Bill of Materials
» Recipe management
» Inventory management

Data Acquisition
» Third-party
» Automation layer interface
» ERP interface
» Planning system interface
» LIMS interface
» SCADA interface
» SPC interface
Quality Management
- LIMS integration
- At-line and in-line testing
- 21 CFR Part 11 compliant
- Full product genealogy
- Statistical Process Control (SPC)
- Audit trail and electronic signature

KPI Management & Reporting
- KPI efficiency calculation and visualization
- Overall Equipment Effectiveness (OEE)
- Real-time reports
- Andon
- Customizable dashboards

Advanced Planning & Scheduling
- Capacity planning
- Production scheduling
- Simulation

MES Features for Process Industry
- Standard interfaces to keep ERP system and shop floor in sync (e.g., ERP orders, material master, product definition, planned production schedule, production performance, material consumption) according to ISA-95 and ISA-88 standards.

- Automatic tracking, tracing and full genealogy creation for all the materials present in the plant. Integration with handhelds, RFIDs and barcode scanners.

- Management and execution of orders manually created within the MES solution or coming from the ERP layer (e.g., plant order, production order, maintenance order, transport order, etc.).

- Management of material master data and product definitions manually created within the MES solution or coming from specification software. ERP and specification systems are constantly kept in sync by the MES solution.

- Integration of data coming from multiple systems (e.g., LIMS, SPC, ERP, SCADA, etc.) and plants in a unique data repository optimized for reporting and OLAP analysis.

- Ability to acquire Key Operational Parameters (KOPs) linked to process orders as well as to calculate Key Performance Indicators (KPIs) that will drive improvements in decision-making and strategic planning.

- Asset management with real-time monitoring of production lines and equipment. Capability to associate reasons to downtimes as well as to collect and aggregate counter data coming from several different PLCs, DCs, SCADA and Batch systems.

- Compliancy with the 21 CFR Part 11 quality regulations through sophisticated audit trail, logging and electronic signature mechanisms.

- Ability to manage material inventory automatically and in real time. Inventory levels and consequently ERP are automatically updated during the production process with consumption data, and each time new materials enter or exit the plant.

How Engineering Delivers MES
Engineering Digital Industry has more than twenty years of experience delivering successful MES projects for customers in both the process and discrete manufacturing industries. This extensive expertise implementing digital manufacturing solutions for leading customers across different industries worldwide makes our team of engineers not only the most skilled MES specialists available, but also true subject matter experts. Please contact us at info@engusa.com to learn more.