Module 4
Section A: Planning Operations

Term
Allocation

Module 4
Section A: Planning Operations

Term
Component

Module 4
Section A: Planning Operations

Term
Cumulative lead time

Module 4
Section A: Planning Operations

Term
Dependent demand

Module 4
Section A: Planning Operations

Term
Distribution requirements planning (DRP)

Module 4
Section A: Planning Operations

Term
Exception report

Module 4
Section A: Planning Operations

Term
Firm planned order (FPO)

Module 4
Section A: Planning Operations

Term
Independent demand

The raw material, part, or subassembly that goes into a higher-level assembly, compound, or other item. This term may also include packaging materials for finished items. See: ingredient, intermediate part.

1) The classification of resources or item quantities that have been assigned to specific customer or manufacturing orders but have not yet been shipped to the customer or released from the stockroom to production. 2) A process used to distribute material in short supply. Syn.: assignment. See: reservation.

Demand that is directly related to or derived from the bill-of-material structure for other components or end products. Such requirements are therefore calculated instead of forecasted. A given inventory item may have both dependent and independent demand at any given time. For example, a part may simultaneously be the component of an assembly and sold as a service part. See: derived demand, independent demand.

The longest planned length of time to accomplish an activity. It is the sum of the lead time for each bill of material (BOM) path below an item. Whichever path adds up to the greatest number defines cumulative lead time. Syns.: aggregate lead time, combined lead time, composite lead time, stacked lead time. See: critical path lead time, planning horizon, planning time fence.

A report that lists or flags only those items that deviate from planned thresholds.

The function of determining the need to replenish inventory at branch warehouses. A time-phased order point approach often is used when the planned orders at the branch warehouse level are “exploded” via material requirements planning (MRP) logic to become gross requirements of the supplying source. In the case of multilevel distribution networks, this explosion process can continue down through the various levels of regional warehouses (e.g., master warehouse, factory warehouse, etc.) and become input to the master production schedule (MPS).

The demand for an item that is unrelated to the demand for other items. Demand for finished goods, parts required for destructive testing, and service parts requirements are examples of independent demand. See: dependent demand.

A planned order that can be frozen in quantity and time. The order is not changed automatically to balance supply and demand, but it can be overridden by the planner. This technique can aid planners working with material requirements planning (MRP) to respond to material and capacity problems by firming up selected planned orders. See: nervousness, planning time fence.

Module 4
Section A: Planning Operations

Term
Joint replenishment

Module 4
Section A: Planning Operations

Term
Manufacturing resource planning (MRP II)

Module 4
Section A: Planning Operations

Term
Master schedule

Module 4
Section A: Planning Operations

Term
Master schedule item

Module 4
Section A: Planning Operations

Term
Material requirements planning (MRP)

Module 4
Section A: Planning Operations

Term
Multilevel bill of material (BOM)

Module 4
Section A: Planning Operations

Term
Open order

Module 4
Section A: Planning Operations

Term
Parent item

A method for the effective planning of all internal resources of a manufacturing company. It is made up of a variety of processes, each linked together: business planning, production planning (sales and operations planning (S&OP)), master production scheduling, material requirements planning (MRP), capacity requirements planning (CRP), and the execution support systems for capacity and material. Output from these systems is integrated with financial reports such as the business plan, purchase commitment report, shipping budget, and inventory projections in dollars. MRP II is a direct outgrowth and extension of closed-loop MRP and is the predecessor to enterprise resource planning (ERP).

The coordination of the lot sizing and order release decisions for related items and treating them as a family of items. The objective is to achieve lower costs from ordering, setup, shipping, and quantity discount economies. This term applies equally to joint ordering and to composite part (group technology (GT)) fabrication scheduling. See: joint order, multiple-item lot-sizing model.

A part number selected to be planned by the master scheduler. The item is deemed critical in its impact on lower-level components or resources such as skilled labor, key machines, or dollars. Therefore, the master scheduler, not the computer, maintains the plan for these items. A master schedule item may be an end-item, a component, a pseudo number, or a planning bill of material (BOM).

A format that includes time periods (dates), the forecast, customer orders, projected available balance, available-to-promise (ATP), and the master production schedule (MPS). It takes into account the forecast; the production plan; and other important considerations such as backlog, availability of material, availability of capacity, and management policies and goals. See: master production schedule (MPS).

A display of all the components directly or indirectly used in a parent, together with the quantity required of each component. If a component is a subassembly, blend, intermediate, etc., all its components and all their components also will be exhibited, down to purchased parts and raw materials. See: indented bill of material (BOM).

A set of techniques that uses bill of material (BOM) data, inventory data, and the master production schedule (MPS) to calculate requirements for materials. It makes recommendations to release replenishment orders for material. Further, because it is time phased, it makes recommendations to reschedule open orders when due dates and need dates are not in phase.

The item produced from one or more components. Syn.: parent.

A customer order, manufacturing order, or purchased order that has been released but not yet filled. Syn.: released order. See: scheduled receipt.

Module 4
Section A: Planning Operations

Term
Pegging

Module 4
Section A: Planning Operations

Term
Planned order

Module 4
Section A: Planning Operations

Term
Planned order receipt

Module 4
Section A: Planning Operations

Term
Planned order release

Module 4
Section A: Planning Operations

Term
Pull system

Module 4
Section A: Planning Operations

Term
Push system

Module 4
Section A: Planning Operations

Term
Scheduled receipt

Module 4
Section B: Capacity and Production Activity Control

Term
Bill of resources

A suggested order quantity, release date, and due date created by the planning system's logic when it encounters net requirements in processing material requirements planning (MRP). In some cases, it can also be created by a master scheduling module. Planned orders are created by the computer, exist only within the computer, and may be changed or deleted by the computer during subsequent processing if conditions change. Planned orders at one level will be exploded into gross requirements for components at the next level. Planned orders, along with released orders, serve as input to capacity requirements planning (CRP) to show the total capacity requirements by work center in future time periods. See: planning time fence.

In material requirements planning (MRP) and master production scheduling, the ability to identify for a given item the sources of its gross requirements and/or allocations. Pegging can be thought of as active where-used information. See: capacity pegging, requirements traceability, where-used list.

A row on a material requirements planning (MRP) table that is derived from planned order receipts by taking the planned receipt quantity and offsetting it to the left by the appropriate lead time. See: order release.

The quantity planned to be received at a future date as a result of a planned order release. Planned order receipts differ from scheduled receipts in that they have not been released. Syn.: planned receipt.

1) In production, the production of items at times required by a given schedule planned in advance. 2) In material control, the issuing of material according to a given schedule or the issuing of material to a job order at its start time. 3) In distribution, a system for replenishing field warehouse inventories in which replenishment decision-making is centralized, usually at the manufacturing site or central supply facility. See: pull system.

1) In production, the production of items only as demanded for use or to replace those taken for use. See: pull signal. 2) In material control, the withdrawal of inventory as demanded by the using operations. Material is not issued until a signal comes from the user. 3) In distribution, a system for replenishing field warehouse inventories in which replenishment decisions are made at the field warehouse itself, not at the central warehouse or plant.

A listing of the required capacity and key resources needed to manufacture one unit of a selected item or family. Rough-cut capacity planning (RCCP) uses these bills to calculate the approximate capacity requirements of the master production schedule (MPS). Resource planning may use a form of this bill. Syn.: bill of capacity. See: bill of labor, capacity bill procedure, capacity planning using overall factors (CPOF), product load profile, resource profile, rough-cut capacity planning (RCCP), routing.

An open order that has an assigned due date. See: on-order stock, open order.

Module 4
Section B: Capacity and Production Activity Control

Term
Bottleneck

Module 4
Section B: Capacity and Production Activity Control

Term
Capacity control

Module 4
Section B: Capacity and Production Activity Control

Term
Capacity management

Module 4
Section B: Capacity and Production Activity Control

Term
Capacity planning

Module 4
Section B: Capacity and Production Activity Control

Term
Cycle time

Module 4
Section B: Capacity and Production Activity Control

Term
Demand pull

Module 4
Section B: Capacity and Production Activity Control

Term
Efficiency

Module 4
Section B: Capacity and Production Activity Control

Term
Kanban

The process of measuring production output and comparing it with the capacity plan, determining if the variance exceeds pre-established limits, and taking corrective action to get back on plan if the limits are exceeded. See: input/output control (I/O control).

A facility, function, department, or resource whose capacity is less than the demand placed upon it. For example, a bottleneck machine or work center exists where jobs are processed at a slower rate than they are demanded. Syn.: bottleneck operation. See: limiting operation.

The process of determining the amount of capacity required to produce in the future. This process may be performed at an aggregate or product-line level (resource requirements planning), at the master-scheduling level (rough-cut capacity planning (RCCP)), and at the material requirements planning (MRP) level (capacity requirements planning (CRP)). See: capacity management, capacity requirements planning (CRP), resource planning, rough-cut capacity planning (RCCP).

The function of establishing, measuring, monitoring, and adjusting limits or levels of capacity in order to execute the load created by all manufacturing schedules (e.g., the production plan, master production schedule (MPS), material requirements plan, and dispatch list) to achieve expected service and cost objectives. Capacity management is executed at four levels: resource requirements planning, rough-cut capacity planning (RCCP), capacity requirements planning (CRP), and input/output control (I/0 control). See: capacity planning.

The triggering of material movement to a work center only when that work center is ready to begin the next job. Demand pull shortens or eliminates the queue from in front of a work center, but it can cause a queue at the end of a preceding work center. Demand pull also can occur within a supply chain, in which case it often is called a demand chain. See: demand chain management.

1) In industrial engineering, the time between the completion of two discrete units of production. For example, the cycle time of motors assembled at a rate of 120 per hour is 30 seconds. 2) In materials management, the length of time from when material enters a production facility until it exits. Syn.: throughput time.

A method of just-in-time (JIT) production that uses standard containers or lot sizes with a single card (or other signaling device) attached to each. It is a pull system in which work centers signal that they wish to withdraw parts from feeding operations or suppliers. The term is often used synonymously for the specific scheduling system developed and used by the Toyota Motor Corporation in Japan. See: move card, production card, synchronized production.

A measurement (usually expressed as a percentage) of the actual output relative to the standard output expected. Efficiency measures how well something is performing relative to existing standards; in contrast, productivity measures output relative to a specific input (e.g., tons per labor hour). Efficiency is the ratio of (1) actual units produced to the standard rate of production expected in a time period, (2) standard hours produced to actual hours worked (taking longer means less efficiency), or (3) actual dollar volume of output to a standard dollar volume in a time period.

Module 4
Section B: Capacity and Production Activity Control

Term
Load

Module 4
Section B: Capacity and Production Activity Control

Term
Load leveling

Module 4
Section B: Capacity and Production Activity Control

Term
Lot size

Module 4
Section B: Capacity and Production Activity Control

Term
Manufacturing lead time

Module 4
Section B: Capacity and Production Activity Control

Term
Resource management

Module 4
Section B: Capacity and Production Activity Control

Term
Resource profile

Module 4
Section B: Capacity and Production Activity Control

Term
Rough-cut capacity planning (RCCP)

Module 4
Section B: Capacity and Production Activity Control

Term
Utilization

Spreading orders out in time or rescheduling operations so that the amount of work to be completed in sequential time periods tends to be distributed evenly and is achievable. Syns.: capacity smoothing, level loading. See: heijunka, level schedule.

1) The amount of planned work scheduled for and actual work released to a facility, work center, or operation for a specific span of time. This is usually expressed in terms of standard hours of work or, when items consume similar resources at the same rate, units of production. Syn.: workload. 2) The total cargo or contents of a shipping vehicle in weight, volume, or utilization percentage.

The total time required to manufacture an item, exclusive of lower-level purchasing lead time. For make-to-order (MTO) products, it is the length of time between the release of an order to the production process and shipment to the final customer. For make-to-stock (MTS) products, it is the length of time between the release of an order to the production process and receipt into inventory. Manufacturing lead time includes order preparation time, queue time, setup time, run time, move time, inspection time, and put-away time. Syns.: manufacturing cycle, production cycle, production lead time. See: lead time.

The amount of a particular item that is ordered from a manufacturing facility or a supplier or is issued as a standard quantity to the production process. Syn.: order quantity.

The standard hours of load placed on a resource by time period. Production lead-time data is taken into account to provide time-phased projections of the capacity requirements for individual production facilities. See: bill of resources, capacity planning using overall factors (CPOF), product load profile, rough-cut capacity planning (RCCP).

1) The planning and validation of all organizational resources. 2) The effective identification, planning, scheduling, execution, and control of all organizational resources to produce a good or service that provides customer satisfaction and supports the organization's competitive edge and ultimately its organizational goals. 3) An emerging field of study emphasizing the systems perspective, encompassing both the product and process life cycles, and focusing on the integration of organizational resources toward the effective realization of organizational goals. Resources include materials; maintenance, repair, and operating supplies; production and supporting equipment; facilities; direct and indirect employees; staff; administrative and professional employees; information; knowledge; and capital. Syn.: integrated resource management (IRM).

1) A measure (usually expressed as a percentage) of how intensively a resource is being used to produce a good or service. This measure compares actual time used to available time. Traditionally, it is calculated as the ratio of direct time charged (run time plus setup time) to the clock time available. Utilization is a percentage between 0 percent and 100 percent that is equal to 100 percent minus the percentage of time lost due to the unavailability of machines, tools, workers, and so forth. See: efficiency, productivity. 2) In theory of constraints, activation of a resource that productively contributes to reaching the goal. Over-activation of a resource does not productively utilize a resource. 3) In warehousing, the consolidation of several units into fewer larger units to reduce handling. See: available time.

The process of converting the master production schedule (MPS) into requirements for key resources, often including labor; machinery; warehouse space; suppliers' capabilities; and, in some cases, money. Comparison with available or demonstrated capacity is usually done for each key resource. This comparison assists the master scheduler in establishing a feasible MPS. Three approaches to performing RCCP are the bill of labor (resources and capacity) approach, the capacity planning using overall factors approach, and the resource profile approach. See: bill of resources, capacity planning, capacity planning using overall factors (CPOF), product load profile, resource profile.

Module 4
Section C: Inventory

Term
ABC classification

Module 4
Section C: Inventory

Term
Acquisition cost

Module 4
Section C: Inventory

Term
Anticipation inventories

Module 4
Section C: Inventory

Term
Backorder

Module 4
Section C: Inventory

Term
Buffer

Module 4
Section C: Inventory

Term
Carrying cost

Module 4
Section C: Inventory

Term
Configuration management

Module 4
Section C: Inventory

Term
Cycle counting

The cost required to obtain one or more units of an item. This is computed as order quantity times unit cost. See: ordering cost.

The classification of a group of items in decreasing order of annual dollar volume (price multiplied by projected volume) or other criteria. This array is then split into three classes, called A, B, and C. The A group usually represents 10 percent to 20 percent by number of items and 50 percent to 70 percent by projected dollar volume. The next grouping, B, usually represents about 20 percent of the items and about 20 percent of the dollar volume. The C class contains about 50 percent of the items and represents about 10 percent to 30 percent of the dollar volume. The ABC principle states that effort and money can be saved through applying looser controls to the low-dollar-volume class items than to the high-dollar-volume class items. The ABC principle is applicable to inventories, purchasing, and sales. Syns.: ABC analysis, distribution by value. See: 80-20 rule, classification, Pareto analysis, Pareto's law.

An unfilled customer order or commitment. A backorder is an immediate (or past-due) demand against an item whose inventory is insufficient to satisfy the demand. See: stockout.

Additional inventory above basic stocking levels to cover projected trends of increasing sales, planned sales promotion programs, seasonal fluctuations, plant shutdowns, and vacations.

The cost of holding inventory, usually defined as a percentage of the dollar value of inventory per unit of time (generally one year). Carrying cost depends mainly on the cost of capital invested as well as costs of maintaining the inventory, such as taxes and insurance, obsolescence, spoilage, and space occupied. Such costs vary from 10 percent to 35 percent annually, depending on type of industry. Carrying cost is ultimately a policy variable reflecting the opportunity cost of alternative uses for funds invested in inventory. Syn.: holding cost. See: inventory cost.

1) A quantity of materials awaiting further processing. It can refer to raw materials, semi-finished stores or hold points, or a work backlog that is purposely maintained behind a work center. 2) In theory of constraints, buffers can be time or material, and they support throughput and/or due date performance.

An inventory accuracy audit technique in which inventory is counted on a cyclic schedule rather than once a year. A cycle count is usually taken on a regular, defined basis (often more frequently for high-value or fast-moving items and less frequently for low-value or slow-moving items) to identify errors in inventory records quickly and to trigger corrective action. Most effective cycle counting systems require the counting of a certain number of items every workday, with each item counted at a prescribed frequency. See: count frequency, inventory cycle counting.

The ability to manage product data for the life cycle of the product or service with a high level of data integrity to ensure product quality and conformance, as well as efficient operations. This also facilitates an efficient change management and notification process and allows for access to product data.

Module 4
Section C: Inventory

Term
Cycle stock

Module 4
Section C: Inventory

Term
Decoupling

Module 4
Section C: Inventory

Term
Distribution center (DC)

Module 4
Section C: Inventory

Term
Echelon

Module 4
Section C: Inventory

Term
End-of-life product management

Module 4
Section C: Inventory

Term
Fixed order quantity (FOQ)

Module 4
Section C: Inventory

Term
In-transit inventory

Module 4
Section C: Inventory

Term
Inventory

Creating independence between supply and use of material. The process commonly denotes allocating inventory between operations so that fluctuations in the production rate of the supplying operation do not constrain the production or use rates of the next operation.

The amount of inventory maintained to fulfill demand during an order cycle. The cycle stock depletes gradually as customer orders are fulfilled and is replenished cyclically when orders from suppliers are received. Syn.: cycle inventory. See: lot-size inventory.

A level of supply chain nodes, such as factories, warehouses, and retail stores. Each echelon adds operating expense, holds inventory, adds to the cycle time, and expects to make a profit. See: disintermediation.

Typically a finished goods warehouse designed for demand-driven rapid distribution to retailers (retail DCs), wholesalers, or direct shipments to customers (order fulfillment centers). Cross-docking warehouses are another type of DC. See: cross-docking.

A lot-sizing technique in material requirements planning (MRP) or inventory management that will always cause planned or actual orders to be generated for a predetermined fixed quantity, or multiples thereof, if net requirements for the period exceed the fixed order quantity (FOQ). See: fixed order period system, min-max system, period order quantity (POQ).

Planning for the phase-out of a product to avoid out-of-stock situations, excess inventory, or negative environmental impacts. This involves notifying customers so they can make timely conversions and plan lifetime buys of replacement parts, as well as considering the disposition of the materials.

Items or stock used to support production (raw materials and work in process (WIP) items), supporting activities (maintenance, repair, and operating supplies), and customer service (finished goods and spare parts). Demand for inventory may be dependent or independent. Inventory functions are anticipation, hedge, cycle (lot size), fluctuation (safety, buffer, or reserve), transportation (pipeline), and service parts. Total inventory value is represented as a current asset on an organization's balance sheet.

Material moving between two or more locations, usually separated geographically (e.g., finished goods being shipped from a plant to a distribution center (DC)).

Module 4
Section C: Inventory

Term
Inventory accuracy

Module 4
Section C: Inventory

Term
Inventory adjustment

Module 4
Section C: Inventory

Term
Inventory control

Module 4
Section C: Inventory

Term
Inventory management

Module 4
Section C: Inventory

Term
Inventory ordering system

Module 4
Section C: Inventory

Term
Inventory planning

Module 4
Section C: Inventory

Term
Inventory visibility

Module 4
Section C: Inventory

Term
Landed cost

A change made to an inventory record to correct the balance in order to bring it in line with actual physical inventory balances. The adjustment either increases or decreases the item record on-hand balance.

A metric that compares the actual on-hand quantity with the recorded balance in the system. This metric usually is measured as the percent of items with inventory levels that fall within an allowable tolerance. Target values usually are 95 percent to 99 percent, depending on the value of the item. For logistics operations, it is sometimes measured as the number of storage locations with errors divided by the total number of storage locations.

The area of business management concerned with planning and controlling inventories, such as warehouse and material handling processes.

The activities and techniques of maintaining the desired levels of items, whether raw materials, work in process (WIP), or finished products and storing them properly to enable effective tracking and ensure their usable condition. Syn.: material control.

The activities and techniques of determining the desired levels of items, whether raw materials, work in process (WIP), or finished products (including order quantities and safety stock levels). Syn.: material planning.

An inventory model for the replenishment of inventory. Independent demand inventory ordering systems include fixed reorder cycle, fixed reorder inventory model, optional replenishment, and hybrid models, among others. Dependent demand inventory ordering systems include material requirements planning, kanban, and drum-buffer-rope.

This cost includes the product cost plus the costs of logistics, such as warehousing, transportation, and handling fees, as well as customs and duty fees. See: laid-down cost.

The extent to which inventory information is shared within a firm and with supply chain partners.

Module 4
Section C: Inventory

Term
Life cycle analysis

Module 4
Section C: Inventory

Term
Lot-for-lot (L4L)

Module 4
Section C: Inventory

Term
Ordering cost

Module 4
Section C: Inventory

Term
Physical inventory

Module 4
Section C: Inventory

Term
Safety lead time

Module 4
Section C: Inventory

Term
Safety stock

Module 4
Section C: Inventory

Term
Time-phased order point (TPOP)

Module 4
Section C: Inventory

Term
Work in process (WIP)

A lot-sizing technique that generates planned orders in quantities equal to the net requirements in each period. See: discrete order quantity.

1) Syn.: life cycle assessment (LCA). 2) A quantitative forecasting technique that is based on applying past patterns of demand data and that covers introduction, growth, maturity, saturation, and decline of similar products to a new product family. See: product life cycle.

1) The actual inventory itself. 2) The determination of inventory quantity by actual count. Physical inventories can be taken on a continuous, periodic, or annual basis. Syns.: annual inventory count, annual physical inventory. See: periodic inventory.

The costs an organization incurs each time it places an order. Ordering cost is used in determining order quantities and includes costs related to the administrative work of preparing, releasing, and monitoring orders and paying invoices; the physical handling of goods; receiving and inspection; and setups, as applicable. Syn: order cost. See: acquisition cost, inventory cost.

Stock planned to be in inventory to protect against fluctuations in demand or supply, including uncertainty, forecast errors, long lead times, or supplier shortages. Syns.: buffer stock, reserve stock. See: hedge, inventory buffer.

An element of time added to normal lead time to protect against fluctuations in lead time so that an order can be completed before its real need date. When used, the material requirements planning (MRP) system, in offsetting for lead time, will plan both order release and order completion for earlier dates than it would otherwise. Syns.: protection time, safety time.

A good or goods in various stages of completion throughout the plant, including all material from raw material that has been released for initial processing up to completely processed material awaiting final inspection and acceptance as finished goods inventory. Many accounting systems also include the value of semi-finished stock and components in this category. Syn.: in-process inventory.

A material requirements planning (MRP)-like time planning logic technique for independent demand items in which gross requirements come from a forecast, not via explosion. This method can be used to plan distribution center (DC) inventories as well as to plan for service (repair) parts because MRP logic can readily handle items with dependent demand, independent demand, or a combination of both. It is an approach that uses time periods, thus allowing for lumpy withdrawals instead of average demand. When used in distribution environments, the planned order releases are input into the master schedule dependent demand requirements. See: fixed order quantity (FOQ) inventory model.

Module 4
Section D: Performance and Continuous Improvement

Term
80-20 rule

Module 4
Section D: Performance and Continuous Improvement

Term
Appraisal costs

Module 4
Section D: Performance and Continuous Improvement

Term
Buffer

Module 4
Section D: Performance and Continuous Improvement

Term
Constraint

Module 4
Section D: Performance and Continuous Improvement

Term
Continuous process improvement (CPI)

Module 4
Section D: Performance and Continuous Improvement

Term
Control chart

Module 4
Section D: Performance and Continuous Improvement

Term
Cost of poor quality

Module 4
Section D: Performance and Continuous Improvement

Term
Define, measure, analyze, improve, control (DMAIC) process

Those costs associated with the formal evaluation and audit of quality in the firm. Typical costs include inspection, quality audits, testing, calibration, and checking time.

A term referring to the Pareto principle. The principle suggests that most effects come from relatively few causes; that is, 80 percent of the effects (or sales or costs) come from 20 percent of the possible causes (or items). See: ABC classification, category management, Pareto analysis, Pareto's law.

1) Any element or factor that prevents a system from achieving a higher level of performance with respect to its goal. Constraints can be physical, such as a machine center or a lack of material, but they can also be managerial, such as a policy or procedure. 2) One of a set of equations that cannot be violated in an optimization procedure.

1) A quantity of materials awaiting further processing. It can refer to raw materials, semi-finished stores or hold points, or a work backlog that is purposely maintained behind a work center. 2) In theory of constraints, buffers can be time or material, and they support throughput and/or due date performance.

A graphic comparison of process performance data with predetermined computed control limits. The process performance data usually consists of groups of measurements selected in the regular sequence of production that preserve the order. The primary use of control charts is to detect assignable causes of variation in the process as opposed to random variations. The control chart is one of the seven tools of quality. Syn.: process control chart.

A never-ending effort to expose and eliminate root causes of problems through the use of small, incremental improvement steps. Syn.: continuous improvement (CI). See: kaizen.

A six sigma improvement process composed of five stages: (1) Determine the nature of the problem; (2) Measure existing performance, and commence recording data and facts that offer information about the underlying causes of the problem; (3) Analyze the information to determine the root causes of the problem; (4) Improve the process by effecting solutions to the problem; and (5) Monitor the process until the solutions become ingrained.

The costs associated with performing a task incorrectly and/or generating unacceptable output. These costs would include the costs of nonconformities, inefficient processes, and lost opportunities. See: quality costs.

Module 4
Section D: Performance and Continuous Improvement

Term
Heijunka

Module 4
Section D: Performance and Continuous Improvement

Term
Inventory shrinkage

Module 4
Section D: Performance and Continuous Improvement

Term
Just-in-time (JIT) manufacturing

Module 4
Section D: Performance and Continuous Improvement

Term
Kaizen

Module 4
Section D: Performance and Continuous Improvement

Term
Kaizen blitz

Module 4
Section D: Performance and Continuous Improvement

Term
Kaizen event

Module 4
Section D: Performance and Continuous Improvement

Term
Key performance indicator (KPI)

Module 4
Section D: Performance and Continuous Improvement

Term
Lean metric

Reductions of actual quantities of items in stock, in process, or in transit. The loss may be caused by scrap, theft, deterioration, evaporation, and so forth. Syn.: shrinkage.

In just-in-time (JIT) philosophy, an approach to level production throughout the supply chain to match the planned rate of end product sales. See: load leveling, mixed-model production, mixed-model scheduling.

The Japanese term for improvement. Kaizen refers to continuing improvement involving everyone—managers and workers. In manufacturing, kaizen relates to finding and eliminating waste in machinery, labor, or production methods. See: continuous process improvement (CPI).

A philosophy of manufacturing based on planned elimination of all waste and on continuous improvement of productivity. The primary elements of JIT manufacturing are to have only the required inventory when needed; to improve quality to zero defects; to reduce lead times by reducing setup times, queue lengths, and lot sizes; to incrementally revise the operations themselves; and to accomplish these activities at minimum cost. In the broad sense, it applies to all forms of manufacturing—job shop, process, and repetitive—and to many service industries as well. Syns.: short-cycle manufacturing, stockless production, zero inventories.

A focused process improvement project carried out by a cross-functional team designed to achieve specific outcomes in a targeted work area over a short period of time. The kaizen event is an implementation arm of a lean manufacturing program. See: kaizen blitz.

A rapid improvement of a limited process area, such as a production cell. Workers in the area or cell use innovative thinking to eliminate non-value-added work and to immediately implement the changes within a week or less. Ownership of the improvement by the area work team and the development of the team's problem-solving skills are additional benefits. See: kaizen event.

A quantitative measurement of performance of a process, team, or the organization overall that can be used to guide improvement efforts toward reducing waste, enhancing quality, and increasing efficiency. Lean metrics take a balanced approach, enabling organizations to measure their performance relative to the needs of their customers.

1) A financial or nonfinancial measure that is used to define and assess progress toward specific organizational goals and that typically is tied to an organization's strategy and business stakeholders. A KPI should not be contradictory to other departmental or strategic business unit performance measures. 2) A metric used to measure the overall performance or state of affairs. Supply Chain Operations Reference (SCOR) level 1 metrics are considered KPIs.

Module 4
Section D: Performance and Continuous Improvement

Term
Lean production

Module 4
Section D: Performance and Continuous Improvement

Term
Load leveling

Module 4
Section D: Performance and Continuous Improvement

Term
Operational performance measurement

Module 4
Section D: Performance and Continuous Improvement

Term
Pareto chart

Module 4
Section D: Performance and Continuous Improvement

Term
Pareto's law

Module 4
Section D: Performance and Continuous Improvement

Term
Process map

Module 4
Section D: Performance and Continuous Improvement

Term
Quality

Module 4
Section D: Performance and Continuous Improvement

Term
Setup time

Spreading orders out in time or rescheduling operations so that the amount of work to be completed in sequential time periods tends to be distributed evenly and is achievable. Syns.: capacity smoothing, level loading. See: heijunka, level schedule.

A philosophy of production that emphasizes the minimization of the amount of all the resources (including time) used in the various activities of the enterprise. It involves identifying and eliminating non-value-adding activities in design, production, supply chain management, and customer management. Lean producers employ teams of multiskilled workers at all levels of the organization and use highly flexible, increasingly automated machines to produce volumes of products in potentially enormous variety. Lean production contains a set of principles and practices to reduce costs through the relentless removal of waste and through the simplification of all manufacturing and support processes. Syns.: lean, lean manufacturing.

A bar graph that displays the results of a Pareto analysis with the bars displayed from longest on the left to shortest on the right. Pareto charts often also include a line graph measured on a secondary vertical axis on the right representing the cumulative percentage of the total.

A performance measurement related to machine, worker, process, or department efficiency; utilization; throughput; and inventory levels. See: performance objective, strategic performance measurement.

A diagram of the flow of a production process or service process through the production system. Standardized symbols are used to designate processing, flow directions, branching decisions, input/output, and other aspects of the process.

A principle first observed by Italian economist Vilfredo Pareto that states that a small percentage of a group accounts for the largest fraction of its impact or value. In ABC classification, for example, 20 percent of the inventory items may constitute 80 percent of the inventory value. See: 80-20 rule, ABC classification.

The time required for a specific machine, resource, work center, process, or line to convert from the production of the last good piece of item A to the first good piece of item B. Syn.: setup lead time. See: single-minute exchange of die (SMED).

Conformance to requirements or fitness for use. Quality can be defined through five principal approaches: (1) Transcendent quality is an ideal and a condition of excellence. (2) Product-based quality is based on a product attribute. (3) User-based quality is fitness for use. (4) Manufacturing-based quality is conformance to requirements. (5) Value-based quality is the degree of excellence at an acceptable price. Also, quality has two major components: (1) quality of conformance, which is quality defined by the absence of defects, and (2) quality of design, which is quality measured by the degree of customer satisfaction with a product's characteristics and features.

Module 4
Section D: Performance and Continuous Improvement

Term
Six sigma

Module 4
Section D: Performance and Continuous Improvement

Term
Statistical process control (SPC)

Module 4
Section D: Performance and Continuous Improvement

Term
Stock keeping unit (SKU)

Module 4
Section D: Performance and Continuous Improvement

Term
Total productive maintenance (TPM)

Module 4
Section D: Performance and Continuous Improvement

Term
Total quality management (TQM)

Module 4
Section D: Performance and Continuous Improvement

Term
Value stream

Module 4
Section D: Performance and Continuous Improvement

Term
Velocity

Module 4
Section D: Performance and Continuous Improvement

Term
Waste

The application of statistical techniques to monitor and adjust an operation. This term often is used interchangeably with the term statistical quality control (SQC), although SQC includes acceptance sampling, as well as statistical process control. See: out-of-control process.

A methodology that uses a set of management tools and techniques for the improvement of business processes. The intent is to reduce the probability of an error or defect by decreasing process variation and improve product quality.

Preventive maintenance plus continuing efforts to adapt, modify, and refine equipment to increase flexibility; reduce materials handling; and promote continuous flows. It is operator-oriented maintenance with the involvement of all qualified employees in all maintenance activities. Syn.: total preventive maintenance.

A unique code that is used by warehouses, distribution centers (DCs), and retailers to identify and track inventory at a particular location. One product stocked at various locations may be represented by unique SKUs at each location.

The processes of creating, producing, and delivering a good or service to the market. For a good, the value stream encompasses the raw material supplier, the manufacture and assembly of the good, and the distribution network. For a service, the value stream consists of suppliers, support personnel and technology, the service producer, and the distribution channel. A value stream may be controlled by a single business or a network of several businesses.

A management approach to quality improvement that is driven through customer satisfaction. TQM is based on the participation of all members of an organization in improving processes, goods, services, and the culture in which they work. The methods for implementing this approach are found in teachings of such quality leaders as Philip B. Crosby, W. Edwards Deming, Kaoru Ishikawa, J.M. Juran, and Genichi Taguchi. See: manufacturing philosophy.

1) Any activity that does not add value to the good or service in the eyes of the consumer. 2) A by-product of a process or task with unique characteristics requiring special management control. Waste production can usually be planned and somewhat controlled. Scrap is typically not planned and may result from the same production run as waste. See: hazardous waste.

1) The rate of change of an item with respect to time. See: inventory turnover, lead time. 2) In supply chain management, a term used to indicate the relative speed of all transactions, collectively, within a supply chain community. A maximum velocity is most desirable because it indicates higher asset turnover for stockholders and faster order-to-delivery response for customers.