

Production Management

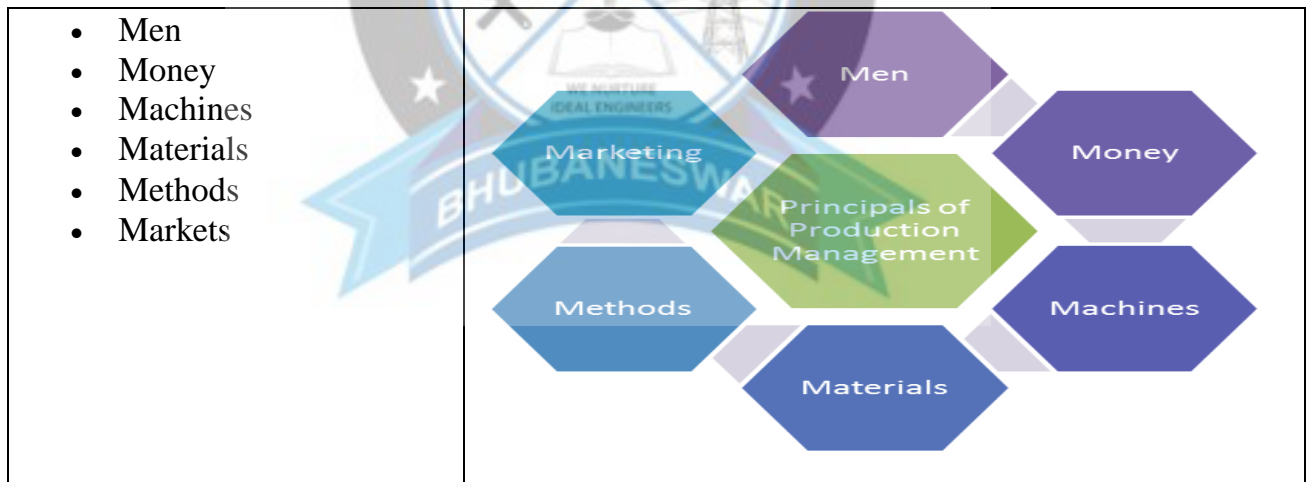
Production Management refers to the application of management principles to the production function in a factory. In other words, production management involves application of planning, organizing, directing and controlling the production process.

It is also called operations management, planning, and control of industrial processes to ensure that they move smoothly at the required level.

Production “Management deals with decision–making related to the production process. So that the resulting goods and services are produced in accordance with the quantitative specifications and demand schedule with minimum cost.

Production Management is the process of effective planning and regulating the operations of that section of an enterprise which is responsible for the actual transformation of materials into finished products.” This definition limits the scope of production management to those activities of an enterprise which are associated with the transformation process of inputs into outputs. & the definition does not include the human factors involved in a production process. It lays stress on materialistic features only.

Production management involves the planning, organisation, direction and execution of production activities. The ultimate goal of any production management solution is to convert a collection of raw materials into a finished product. Some people refer to production management as the bringing together of the **6 'Ms'**:



These constituents come together to provide consumers and businesses with products that they need or want.

The production management principles are often referred to as operation management principles, and they are designed to facilitate the production of goods that are of the required quality and quantity.

Principles of Production Management

Shorter set-up times.

By their nature, all set-up processes result in waste; they tie up labour and equipment without adding value. Training, improved efficiency and giving workers accountability for their own set-ups allowed Toyota to slash their set-up times.

Small-scale production.

Cutting the cost and time spent on set-ups allows a company to produce goods in smaller batches and according to demand. This results in lower set-up, capital and energy costs.

Empowering employees.

Dividing a workforce into small teams and giving them accountability for housekeeping and various other tasks has been shown to improve efficiency. Teams are assigned leaders, and the workers within those teams are trained on maintenance issues - allowing them to deal with delays in the production process immediately.

Equipment Maintenance.

Workers on the line are best placed to deal with mechanical breakdowns and subsequent repairs. They can react to issues quickly and often without supervision, which allows the production process to restart far more quickly after a shut-down.

Pull Production.

In a bid to minimise inventory holding costs and production lead times, Toyota pioneered a system whereby the quantity of materials, labour and energy expended at every stage of the process was solely reliant on the demand for products from the next stage of production.

Often referred to as Just in Time (JIT), this principle was aimed at producing goods according solely to the demand for them at any given time, thus eliminating unnecessary costs.

Supplier Involvement.

Toyota demonstrated that treating component and raw material suppliers as integral components of their own production process led to a number of benefits. Suppliers were given training in Toyota processes, machinery, inventory systems and set-up procedures. As a result, their suppliers were able to react positively and swiftly when problems occurred.

Characteristics of production management

1. Production Management is the process of effective planning

It helps in regulating the operations of that section of an enterprise which is responsible for the actual transformation of materials into finished products.

2. Related to the production process.

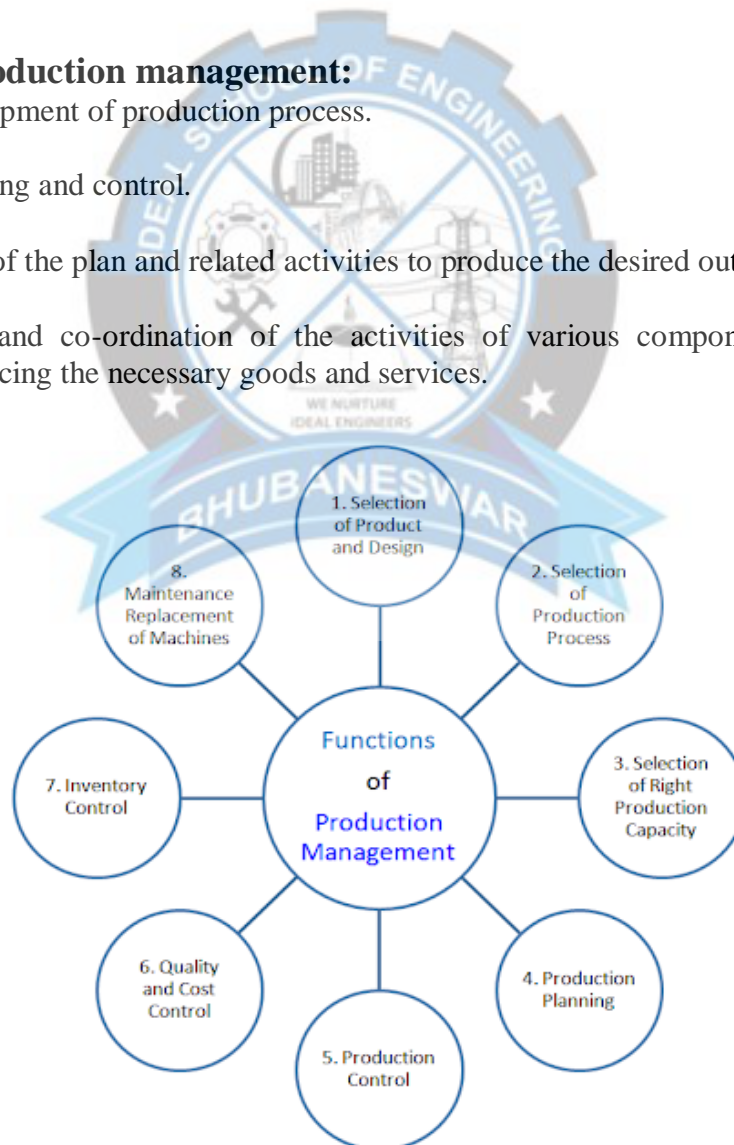
goods and services are produced in accordance with the quantitative specifications and demand schedule with minimum cost.

3. Production Management is a set of general principles for production

Production management has a set of certain principles like economies, facility design, job design, schedule design, quality control, inventory control, work-study and cost, and budgetary control.

Functions of production management:

- (i) Design and development of production process.
- (ii) Production planning and control.
- (iii) Implementation of the plan and related activities to produce the desired output.
- (iv) Administration and co-ordination of the activities of various components and departments responsible for producing the necessary goods and services.



Meaning of Production Planning And Control:

Production planning and control involves generally the organization and planning of the manufacturing process. Specifically, it consists of the planning of the routing, scheduling, dispatching and inspection, co-ordination and the control of materials, methods, machines, tooling and operating times.

Production planning and control is an important task of Production Manager. It has to see that production process is properly decided in advance and it is carried out as per the plan. Production is related to the conversion of raw materials into finished goods. This conversion process involves a number of steps such as deciding what to produce, how to produce, when to produce, etc. These decisions are a part, of production planning. Merely deciding about the task is not sufficient.

The whole process should be carried out in a best possible way and at the lowest cost. Production Manager will have to see that the things proceed as per the plans. This is a control function and has to be carried as meticulously as planning. Both planning and control of production are necessary to produce better quality goods at reasonable prices and in a most systematic manner.

Importance of Production Planning & Control

Some of the most beneficial features of production planning and control include the following:

- Customer Service Enhancement - Through improved scheduling and production, these services allow customers to have a much more pleasant experience through enhanced quality of goods and on-time delivery. These improvements will ultimately win customers over and persuade them to establish an on-going and profitable relationship.
- Inventory Control - With a promising production planning and control system, inventory planning becomes much easier. This is done by maintaining inventory levels while also minimizing inventory investment. The software is also able to enforce better control over raw-material inventory, which benefits purchasing.
- Equipment Improvement - Production planning and control accounts for any lack of productivity among equipment. It allows for management to oversee productivity among equipment and ensure that resources are being used efficiently.
- Plant Morale Improvement - Plant morale is improved significantly through ensurement of work flow and avoiding any rush orders. This is conducted through communication and proper coordination of activities among departments.
- Idle Time Reduction - Productivity is lost through idle times where workers are waiting for any materials, which is where this software can enable a much more smooth flow of materials.

Objectives of production planning and production control:

Production Planning:

1. To determine the requirements for men, materials and equipment.
2. Production of various inputs at a right time and in right quantity.
3. Making most economical use of various inputs.
4. Arranging production schedules according to the needs of marketing department.
5. Providing for adequate stocks for meeting contingencies.
6. Keeping up-to-date information processes.

Production Control:

1. Making efforts to adhere to the production schedules.
2. Issuing necessary instructions to the staff for making the plans realistic.
3. To ensure that goods produced according to the prescribed standards and quality norms.
4. To ensure that various inputs are made available in right quantity and at proper time.
5. To ensure that work progresses according to the predecided plans.

Objectives of Production Planning & Control

The objectives of PPC are as follows:

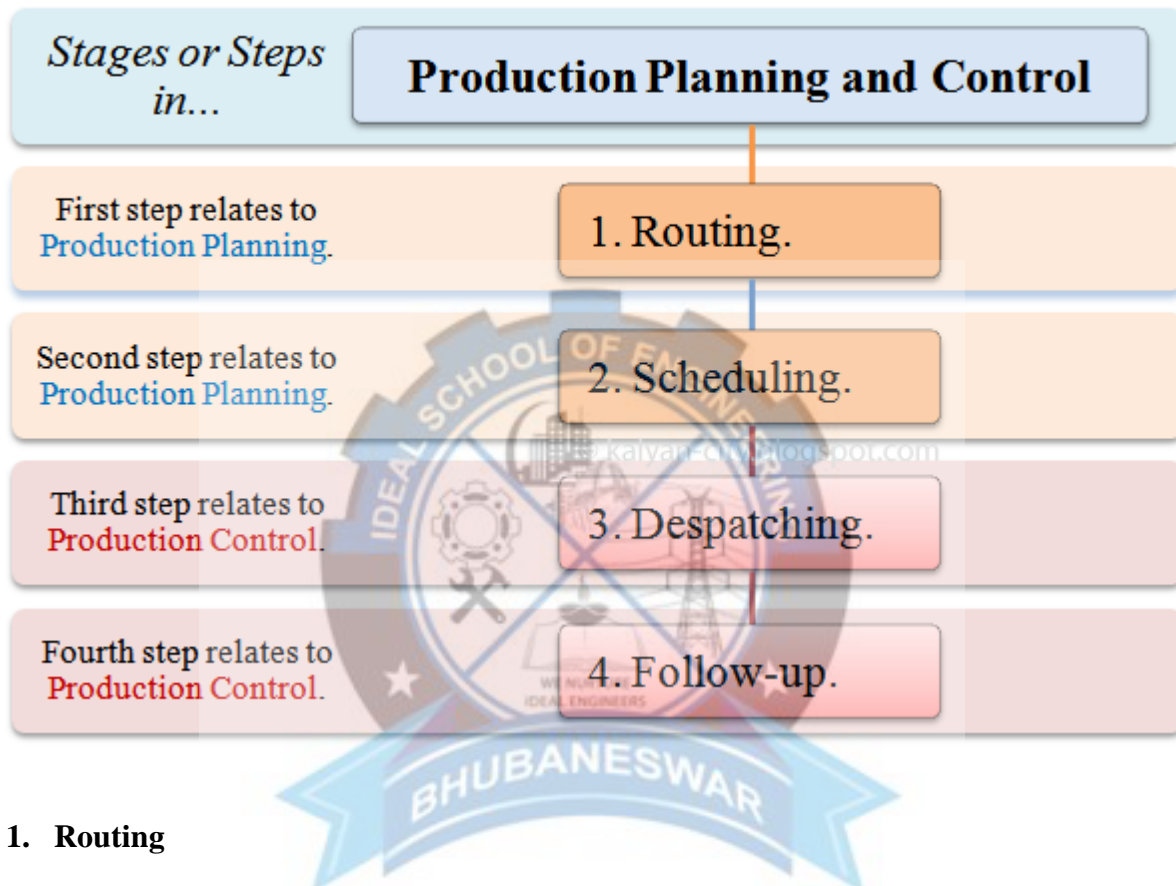
1. to ensure safe and economical production process
2. to effectively utilize plant to maximize productivity
3. to maximize efficiency by proper coordination in production process
4. to ensure proper delivery of goods
5. to place the right man for the right job, at right time for right wages.
6. to minimize labor turnover
7. to reduce the waiting time

Production planning is the core of any manufacturing unit. It includes material forecasting, master production scheduling, long term planning, demand management and more. The PPC process kicks off with demand forecasting of a product, and thereafter designing the production plan according to the demand to move it forward.

Production planning is a strategy to plan a chain of operations that supports manufacturers to be at the right place, at the right time so that they can achieve the maximum efficiency from their resources.

Steps involved in Production Planning and Control.

As per the British Standards Institute, there are four stages or essential elements in the process of production planning and control. These are as follows:



1. Routing

The next important function of production planning and control is routing which involves the determination of the path (i.e. route) of movement of raw materials through various machines and operations in the factory. "Routing includes the planning of where and by whom work shall be done, the determination of the path that work shall follow, and the necessary sequence of operations". To find this path, emphasis is placed on determining operating data, which usually includes planning of 'where' and 'by whom' work should be done, the determinations of the path that work shall follow, and the necessary sequence of operations. These operating data are contained in the standard process sheet which helps in making out a routing in the standard process sheet which helps in making out a routing chart showing the sequence of operations and the machines to be used. If the machine loan chart indicates the non-availability of certain machines, alternate routing may also be included on the routing chart. The most efficient routing may have to be compromised with the availability of the machines at a particular time. In other words, "routing establishes the operations, their path and sequence, and the proper class of machines and personnel required for these operations."

2. Scheduling

Scheduling is planning the time element of production — i.e. a prior determination of “when work is to be done”. It consists of the starting and completion times for the various operations to be performed. In other words, scheduling function determines when an operation is to be performed, or when work is to be completed, the difference lies in the details of the scheduling procedure. To work out effectively, the scheduling, as a part of production control function, determines the time when each operation called for on the route sheet is to be done on the specified machine in order to meet the desired delivery dates. Good control function directs not only the time that each particular operation should start but also indicates the progress of each manufacturing part, the amount of work ahead of each machine, and the availability of each machine for the assignment of new work.

Schedules are of two types: Master schedule and Detailed schedule. Activities, if recorded on plant-wise basis, would be preparing master schedule, while mere detailed schedules are employed to plan the manufacturing and assembly operations required for each product

3. Dispatching

Dispatching is the part of production control that translates the paper — work into actual production. It is the group that coordinates and translates planning into actual production. Dispatching function proceeds in accordance with the details worked out under routing and scheduling functions. As such, dispatching sees to it that the material is moved to the correct work place, that tools are ready at the correct place for the particular operations, that the work is moving according to routing instructions. Dispatching carries out the physical work as suggested by scheduling. Thus, dispatching implies the issuance of work orders. These work orders represent authority to produce. These orders contain the following information:

- The name of the product;
- The name of the part to be produced, sub-assembly or final assembly;
- The order number;
- The quantity to be produced;
- Descriptions and numbers of the operations required and their sequence,
- The departments involved in each operation
- The tools required for particular operation; and
- Machines involved in each operation and starting dates for the operations.

4. Follow-up

Also known as expediting, follow-up is the final step that finds faults or defects, bottlenecks and loopholes in the entire production process. In this step, the team measures the actual performance from start till the end and then compares it with the expected one.

Expeditors or stock chasers are responsible for performing follow-up process. It is quite obvious that any of the processes may undergo break-downs or machine failure. Follow-up promotes smooth production by eliminating these defects.

ASSIGNMENT QUESTIONS

1. What is Production Management? What are the functions? Explain.
2. What are the objectives of production planning and control?
3. Write down the importance of production planning and control.
4. What are the different steps involved in the production planning and control?

