SYLLABUS

B.B.A. III SEM

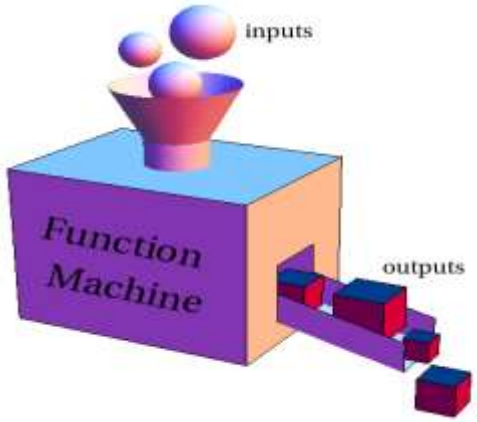
Subject – Operations Management

UNIT – I	**Introduction to productions and operations management: Nature of production, productions and system, production as an organizational function, decision making in production, production management and operations management, Characteristics of modern production and operation management, organization of production function, recent trends in production/operations management.**
UNIT – II	**Production process, manufacturing and service operations: production process, manufacturing operation, service operations, selection of process non manufacturing or service operations, difference between manufacturing and service operations, classification of manufacturing process, manufacturing operations as conversion process, characteristics of modern manufacturing process,**

UNIT – I
Introduction to operations management

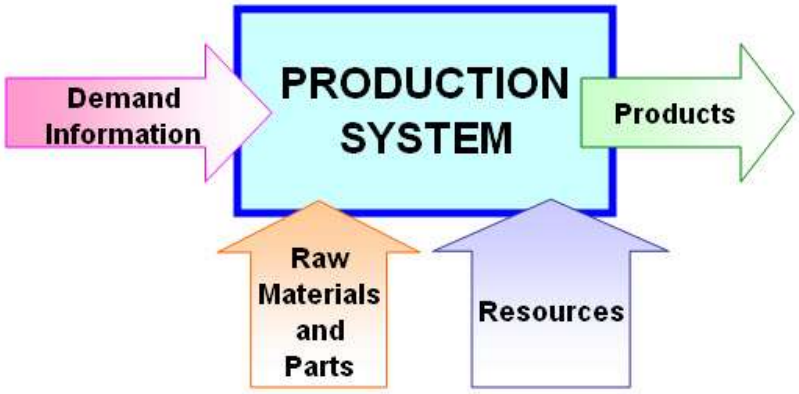
Introduction

Production is the center of all activities of an organization. An organization has many activities such as: Finance, Personnel, Marketing, etc. all of which are dependent on production activity. Hence the position of Production Management in an organization is very important.

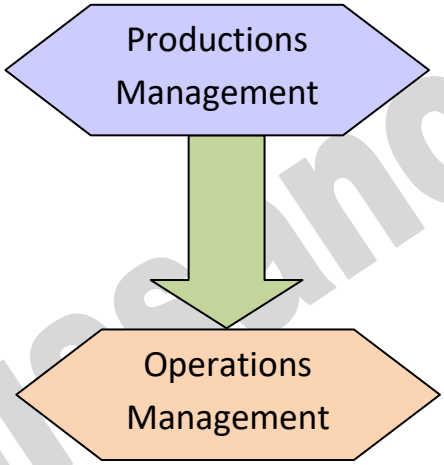


Definitions of Production/Operations Management

1. POM is concerned with that process which converts inputs into outputs. The input are various resources like raw materials, men, machines technology etc. The outputs are goods & services.
2. Production Management: Deals with decision making related to production process so that resulting goods or services are produced according to specifications in amount & by schedules demanded & at minimum cost.
3. Operations management is that activity where by resources are combined and transformed in a controlled manner to add value in accordance with policies communicated by management.
4. POM is multidisciplinary approach which integrates the knowledge of science, technology, engineering & management to convert I/P into O/P's.



Shift from Production Management to Operations Management

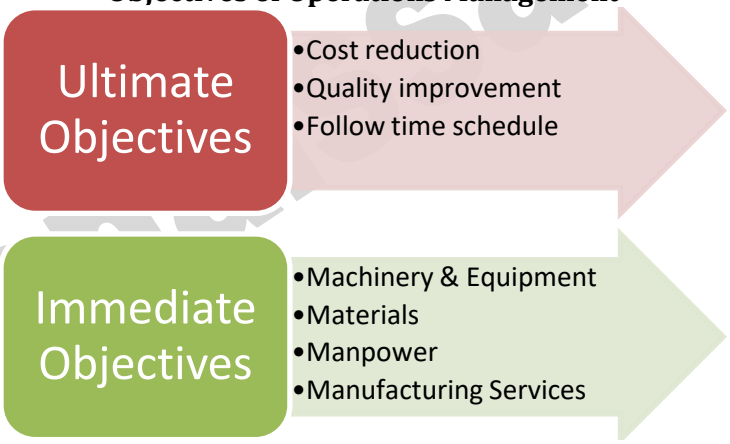


Till the early 1970s, the term 'Production Management' was used but an important change emerged during the 1970s which was reflected in the new name – "Operations Management" which incorporated both production and service related concepts and procedures. As the service sector has become more prominent, the change from 'production' to 'operations' indicates the development of the field to service organization.

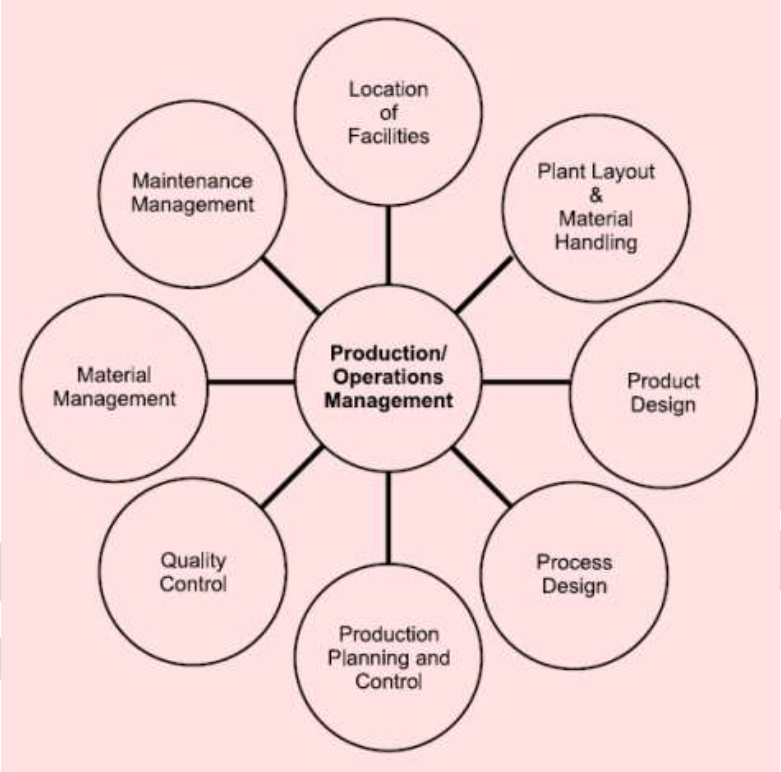
Difference

Base	Production Management	Operations Management
1. Concerned	It is concerned with manufacturing.	**It is concerned with services also.**
2. Nature of output	Output is tangible.	**Output is tangible and intangible also.**
3. Use	In this, job uses less labour and more equipment.	**In this, job uses more labour and less equipment.**
4. Customer participation	**There is no customer participation.**	**Frequent customer participation.**

Objectives of Operations Management



Scope of Operations Management



Functions/Importance of Operations Management

The Important of operations management can be judged by the functions they perform.

(1) Planning: - Planning means defining objective, goals strategies, policies & programs & procedures for production activities & supporting activities.

(2) Organizing: - Organizing means arranging necessary inputs such as materials, machines, Man/labour, location etc for production activities. The concepts involved are –

- Facility Location
- Layout Planning
- Material Resource Planning etc.

(3) Controlling: -Operations Manager exercise control by measuring actual output& comparing them with planned output. Controlling activity includes –

- Quality Control
- Cost Control
- Preparing Produce/Operation Schedules

Decision making in Operation Management

1) **Strategic planning** : Strategic (or long-range) decisions of relevance to the production area (but with important interactions with other functional areas) included which products to produce, on which of the dimensions of cost, quality, delivery and flexibility to compete; where to locate facilities; what production equipment to use; and long-range choices concerning raw materials, energy and labour skills.
2) **Tactical planning** :Tactical (medium-range) plans, with a planning horizon from six months to two years into the future, take the basic physical production capacity constraints and projected demand pattern, established by a long-range plan, and ration available resources to meet demand as effectively and as profitable as possible. Even though basic production capacity is essentially fixed by long-range considerations, production capacity can be increased or decreased within limits in the medium term. A decision can be made to vary one or more of the following: the size of the work force, the amount of overtime worked, the number of shifts worked, the rate of production, the amount of inventory, the shipping modes and possible the amount of subcontracting utilized by the company. These plans, in turn, constrain but provide stability to what can be done at the operational level.
3) **Operational planning :**Operational (short-term) activities provide the day-to-day flexibility needed to meet customer requirements on a daily basis within the guidelines established by the more aggregate plans discussed above. Short-range operating schedules take the orders directly from customers, or as generated by the inventory system and plan in detail how the products should be processed through a plant. In most cases detailed schedules are drawn up for one week, then one day and finally one shift in advance. The schedules involve the assignment of products to machines, the sequencing and routing of orders through the plant, the determination of replenishment quantities for each stock keeping unit and so on.

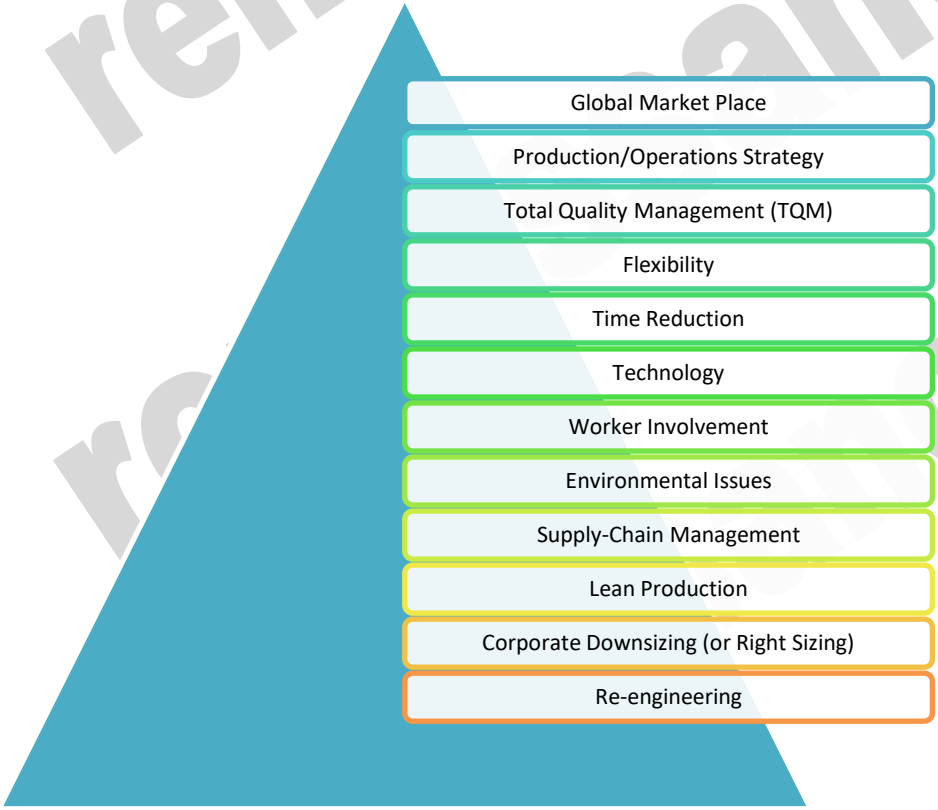
Characteristics of Modern production and operation management

Nature or features or characteristics of production and operation management

1) **It's a transformational process:** The production and operation management is concerned with the conversion of raw material.
2) **Its result into value addition:** In this at every successive level some value is added to the previous one. Example sand at sea shore does not ass any value but sand used in construction adds to the value.

3) **It's a system itself:**It's a complete step wise process i.e. a proper well defined sequence is followed in production and operation management.
4) **It exists for certain objective:**First there is an objective and to meet that particular objective a complete procedure is followed.
5) **It's carried out in part of organization:** Its meaning is that production is not alone in the organization rather there are certain other acts also like finance, research and development etc.
6) **Inter relationship among the system:** No system can ever work in isolation and depends on others for certain help. So, there exists an interrelationship among different system.
7) **Stratum formulation:** A production system consists of various strata of corporate hierarchy in which every stratum has a role to play depending upon the size of the firm. Every stratum enjoys certain benefits as a result of stratum performance.
8) **Specialization of function:** As different functions are performed separately, due to this they are repetitively performed by same people and there is specialization of functions.
9) **Increase in productivity:** As there is specialization in functions so the speed of doing a task increases as a result there is increase in productivity.
10) **Decrease in cost:**Specialization leads to less wastage.

Recent Trends in Production/Operations management



UNIT – 2
Production Process, Manufacturing &Service Organizations

Meaning of Process
A series of stages involving man, machine, method, materials and others resources is known as process through which organizational inputs are transformed into value added output to satisfy customer needs.

Production Process
Also known as 'conversion process' or 'transformation process'.

Manufacturing Operations
Manufacturing operations by which inputs are converted into some tangible outputs.

Service Operations
Service operations are also known as non-manufacturing operations. They are used to transform a set of inputs into a set of outputs which are not tangible. Service operation can be classified into standard services and custom services according to the degree of standardization.

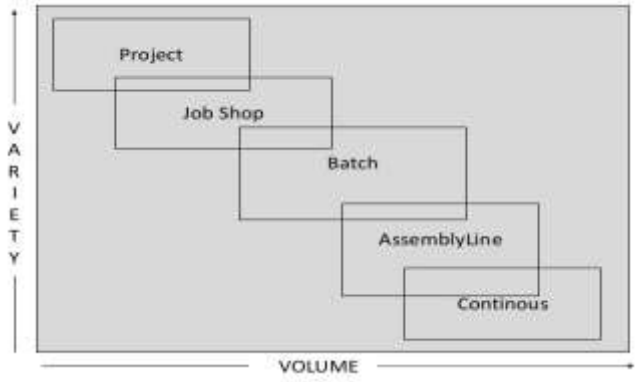
Manufacturing and Services
Common Characteristics of Manufacturing & Service organization:
- Entail customer satisfaction as a key measure of effectiveness
- Require demand forecasting
- Require design of both the product and the process
- Involve purchase of materials, supplies, and services
- Require equipment, tools, buildings, and skills, etc.

Differences between Manufacturing & Service organization:
- **Customer contact**: Service involves a much higher degree of customer contact than manufacturing does.The performance of a service typically occurs at the point of consumption. Manufacturing allows a separation between production and consumption.
- **Uniformity of input**Service operations are subject to more variability of inputs than manufacturing operations are. Each patient, each lawn, each TV presents a specific problem.
- **Labor content of jobs**Manufacturing ---capital –intensive .Service ---a higher labor content.
- **Uniformity of outputProducts**--standardization, low variability, smooth, efficient. **Service**--customization, variable, slow.
- **Storage of output -**In manufacturing StoreGoods may be stored. Services are consumed during delivery, cannot be stored.
- **Measurement of productivity**In manufacturing, measurement is more straightforward In service operation, measurement is more difficult due to variations in demand intensity.

Key Differences Between Service and Manufacturing Operations

Characteristic	Manufacturing	Service
Output	Tangible	Intangible
Customer contact	Low	High
Uniformity of input	High	Low
Labor content	Low	High
Uniformity of output	High	Low
Measurement of productivity	Easy	Difficult
Opportunity to correct quality problems	High	Low

Classification of Manufacturing Process/Types of production system



(A) Job Shop Production: In this system Products are manufactured to meet the requirements of a specific order. The quality involved is small and the manufacturing of the product will take place as per the specifications given by the customer. This system may be further classified as:

(i**) The Job produced only once**: Here the customer visit the firm and book his order. After the completion of the product, he takes delivery of the product and leaves the firm. He may not visit the firm to book the order for the same product. The firm has to plan for material, process and manpower only after receiving the order from the customer. The firms have no scope for pre-planning the production of the product.

(ii) **The job produced at irregular intervals**: Here the customer visits the firm to place orders for the same type of the product at irregular intervals. The firm will not have any idea of customer's visit. Here also planning for materials, process and manpower will start only after taking the order from the customer. In case the firm maintains the record of the Jobs Produced by it, it can refer to the previous plans, when the customer arrives at the firm to book the order.

(iii) **The Jobs Produced periodically at regular intervals**: In this system, the customer arrives at the firm to place orders for the same type of product at regular intervals. Here firm knows very well that the customer visits at regular intervals, it can plan for materials, and process and manpower and have them in a master file. As soon as the customer visits and books the order, the firm can start production. If the volume of the order is considerably large and the number of regularly visiting customers are large in number, the Job Production system slowly transform into Batch Production system.

(B) Batch Production: Batch Production is the manufacture of number of identical products either to meet the specific order or to satisfy the demand. When the Production of plant and equipment is terminated, the plant and equipment can be used for producing similar products. This system also can be classified under three categories.

(i) A batch produced only once: Here customer places order with the firm for the product of his specification. The size of the order is greater than that of job production order. The firm has to plan for the resources after taking the order from the customer.

(ii) **A Batch produced at irregular intervals as per Customer order or when the need arises:** As the frequency is irregular, the firm can maintain a file of its detailed plans and itcan refer to its previous files and start production A Batch Produced periodically at known Intervals: Here the firm either receives order from the customer at regular intervals or it may produce the product to satisfy the demand. It can have well designed file of its plans, material requirement and instructions for the ready reference. It can also purchase materials required in bulk in advance. As the frequency of regular orders goes on increasing the Batch Production system becomes Mass Production System. Here also, in case the demand for a particular product ceases, the plant and machinery can be used for producing other products with slight modification in layout or in machinery and equipment.

(C) Continuous Production: Continuous Production system is the specialized manufacture of identical products on which the machinery and equipment is fully engaged. The continuous productionis normally associated with large quantities and with high rate of demand. Hence the advantage ofautomatic production is taken. This system is classified as:

(i) Mass Production: Here same type of product is produced to meet the demand of anassembly line or the market. This system needs good planning for material, process,maintenance of machines and instruction to operators. Purchase of materials in bulk quantitiesis advisable.

(ii) Flow Production: The difference between Mass and Flow Production is the type of productand its relation to the plant. In Mass Production identical products are produced in largenumbers. If the demand falls or ceases, the machinery and equipment, after slight modificationbe used for manufacturing products of similar nature. In flow production, the plant andequipment is designed for a specified product. Hence if the demand falls for the product orceases, the plant cannot be used for manufacturing other products. It is to be scraped.

Theexamples for the above discussed production system are

(i) **Job Production Shop**: Tailors shop; cycle and vehicles repair shops, Job typing shops,small Workshops.

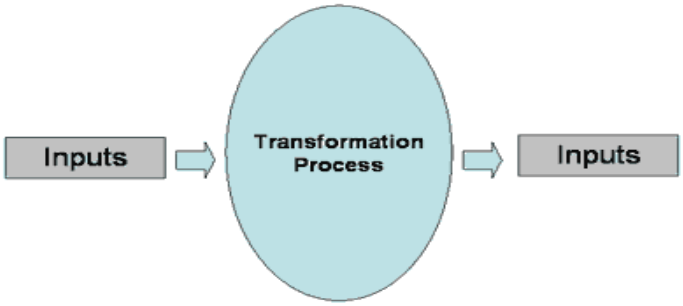
(ii**) Batch Production Shop:** Tyre Production Shops, Readymade dress companies, Cosmetic Manufacturing companies...etc.

(iii) **Mass Production**: Components of industrial products,

(iv) **Flow Production**: Cement Factory, Sugar factory, Oil refineries...etc.

Manufacturing operations as conversion Process

Production and Operations Management ("POM") is about the transformation of production and operational inputs into "outputs" that, when distributed, meet the needs of customers.



The process in the above diagram is often referred to as the **"Conversion Process".**

Characteristics of Modern Manufacturing Process –