

OPERATIONS MANAGEMENT CONCEPTS:

1 INTRODUCTION Operation is that part of an organization, which is concerned with the transformation of a range of inputs into the required output (services) having the requisite quality level. Management is the process, which combines and transforms various resources used in the operations subsystem of the organization into value added services in a controlled manner as per the policies of the organization. The set of interrelated management activities, which are involved in manufacturing certain products, is called as production management. If the same concept is extended to services management, then the corresponding set of management activities is called as operations management.

HISTORICAL DEVELOPMENT For over two centuries operations and production management has been recognized as an important factor in a country's economic growth. The traditional view of manufacturing management began in eighteenth century when Adam Smith recognised the economic benefits of specialization of labour. He recommended breaking of jobs down into subtasks and recognises workers to specialized tasks in which they would become highly skilled and efficient. In the early twentieth century, F.W. Taylor implemented Smith's theories

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PRODUCTION SYSTEM The production system is 'that part of an organisation, which produces products of an organisation. It is that activity whereby resources, flowing within a defined system, are combined and transformed in a controlled manner to add value in accordance with the policies communicated by management'.

The production system has the following characteristics: 1. Production is an organised activity, so every production system has an objective. 2. The system transforms the various inputs to useful outputs. 3. It does not operate in isolation from the other organisation system. 4. There exists a feedback about the activities, which is essential to control and improve system performance.

CLASSIFICATION OF PRODUCTION SYSTEM:

BATCH production:

Mass Production is characterised by 1. Standardisation of product and process sequence. 2. Dedicated special purpose machines having higher production capacities and output rates. 3. Large volume of products. 4. Shorter cycle time of production. 5. Lower in process inventory. 6. Perfectly balanced production lines. 7. Flow of materials, components and parts is continuous and without any back tracking. 8. Production planning and control is easy. 9. Material handling can be completely automatic. Advantages Following are the advantages of Mass Production: 1. Higher rate of production with reduced cycle time. 2. Higher capacity utilisation due to line balancing. 3. Less skilled operators are required. 4. Low process inventory. 5. Manufacturing cost per unit is low. Limitations Following are the limitations of Mass Production: 1. Breakdown of one machine will stop an entire production line. 2. Line layout needs major change with the changes in the product design. 3. High investment in production facilities. 4. The cycle time is determined by the slowest operation.

4 Continuous Production Production facilities are arranged as per the sequence of production operations from the first operations to the finished product. The items are made to flow through the sequence of operations through material handling devices such as conveyors, transfer devices, etc. Continuous Production is characterised by 1. Dedicated plant and equipment with zero flexibility. 2. Material handling is fully automated. 3. Process follows a predetermined sequence of operations. 4. Component materials cannot be readily identified with final product. 5. Planning and scheduling is a routine action. Advantages Following are the advantages of Continuous Production: 1. Standardisation of product and process sequence. 2. Higher rate of production with reduced cycle time. 3. Higher capacity utilisation due to line balancing. 4. Manpower is not required for material handling as it is completely automatic.

Job-Shop Production Job-shop production are characterised by manufacturing one or few quantity of products designed and produced as per the specification of customers within prefixed time and cost. The distinguishing feature of this is low volume and high variety of products. A job-shop comprises of general-purpose machines arranged into different departments. Each job demands unique technological requirements, demands processing on machines in a certain sequence. Job-shop Production is characterised by 1. High variety of products and low volume. 2. Use of general purpose machines and facilities. 3. Highly skilled operators who can take up each job as a challenge because of uniqueness.