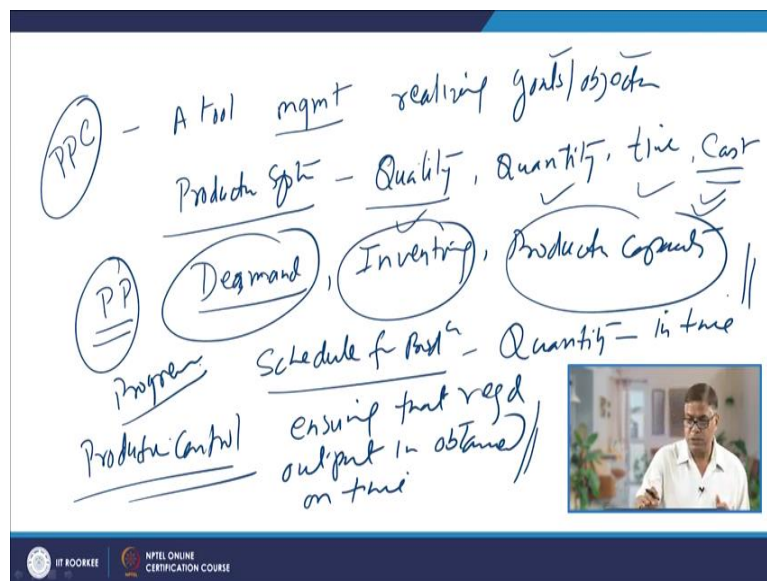


**Principles of Industrial Engineering**  
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**Lecture- 27**  
**Production Planning and Control: Scope**

Hello, I welcome you all in this presentation related with the subject, Principles of Industrial Engineering. And in this presentation will be talking about one of the very important topics related with the Principles of Industrial Engineering that is the, Production Planning and Control. This is one of the tools which is available to the management of an organization, which helps in realizing the goals and objectives. To produce the things which are being done, which are being produced by a given organization.

So, if we see the production planning and control. It comprises the two parts, one is the production planning and another is the production control. And in totality this function helps in developing the suitable plans in such a way that, the required resources are arranged and using those resources the things are produced in such a way, that they are of the required quality, quantity things are produced in time and that too at a very low cost. So, that organization can provide the quality products to their customers at very competitive price.

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So, that their position in the market can be consolidated and strengthened. So if we see, basically production planning and control in short it is termed as, PPC. This is basically a tool

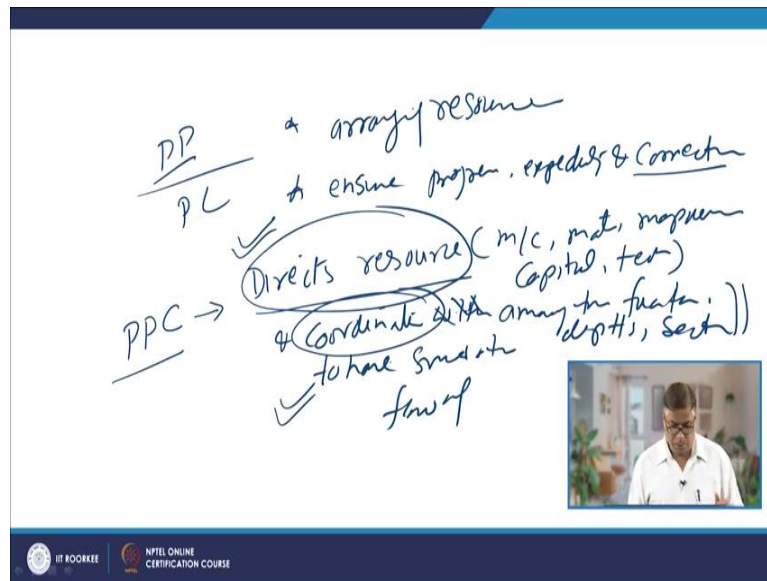
available to the management of the particular organization which helps in realizing the goals and objectives related with the production of the goods and services in which they are. So, it helps the organization to come out with the goods and the services using a production system in such a way that that organization is able to produce the goods and services of the required quality in required quantity at right time.

When it is required for the delivery to the customers, and that too at the minimum possible cost. So, a PPC shall be working to produce the goods in such a way that they are being realised at a required quality in the required quantity at right time, at very low cost. So, that it can be made available to the customers and how it is done basically in development of the production plan, what we keep in mind like the kind of the quantity to be produced, means what is the demand for the product and what is the kind of the inventory available. What is the production capacity for making the goods and services?

Then considering the demand, considering the available items in a stock under the production capacity suitable schedules for production are developed, so that the required quantity of the items desired are produced in time. This is the main purpose of the production planning component and on the other hand, there is a production control helps in ensuring that the required output is obtained on time. And how it is ensured it will be looking into the progress continuously and then making the changes in the production plan.

So, that the required production or the required quantity of the products can be produced on time.

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So, basically in the production planning arranging the resources required for realizing the target in terms of the quantity, quality, cost and time. And in production control, it ensures through the progress checking, expediting and taking the corrective action accordingly, like adding the more resources, changing the plan, making or taking the decision about the buying from some other source or giving the contract for delivery of the items to some other.

So, make or buy decision or complete re-plan for the production is prepared. So, these are the two aspects, production planning and production control. So, if we see broadly the production planning control, this function directs the resources. Resources in form of like say, machines, material, manpower, capital anything which is needed to produce the goods and services, technology etc. directs the resources and coordinates with the coordinates among the different functions, departments, sections.

Purpose of this coordination is to have the smooth flow of work. So, the required production can be realized only if the raw material or the processing of the things, not just in one section is done smoothly but, entire flow of the work from one section to another one department to another takes place smoothly. And for that, a good coordination is needed among the departments and functions. So, if you want to understand basically, it directs the resources and the coordinates, directs the resources to realize the goods which are desired from the production system.

And it coordinates among the functions, resources at the interface so that, there is smooth flow of the work through the interfaces. Then this also can be said that, it helps in planning the things in such a way that, the required resources to produce the desired target, to produce the desired goods in the required quality, quantity, cost and time and also whatever work is done there is a smooth flow of the work through the interfaces. And that is done through the proper coordination among the different departments and resources.

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Need of PPC ✓

Productivity

- \* More effective utilization of resources (man, mat, m/c)
- \* Productivity
- \* Realize the production goal  $\checkmark Q, \checkmark Q, \checkmark C, \checkmark t$
- \* Smooth flow of work across enterprise
- \* Quality Products to Customer at Competitive Price's

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So, now will see the Need of the Production Planning and Control. We want that whatever resources are there in a plant those are effectively utilized so that the maximum possible number of the goods can be produced of the required quality at the minimum cost. So, the one primary the goal is to increase the productivity of the production system. And for that production planning control, helps in increasing the productivity through the more effective utilization or maximizing the utilization of the resources.

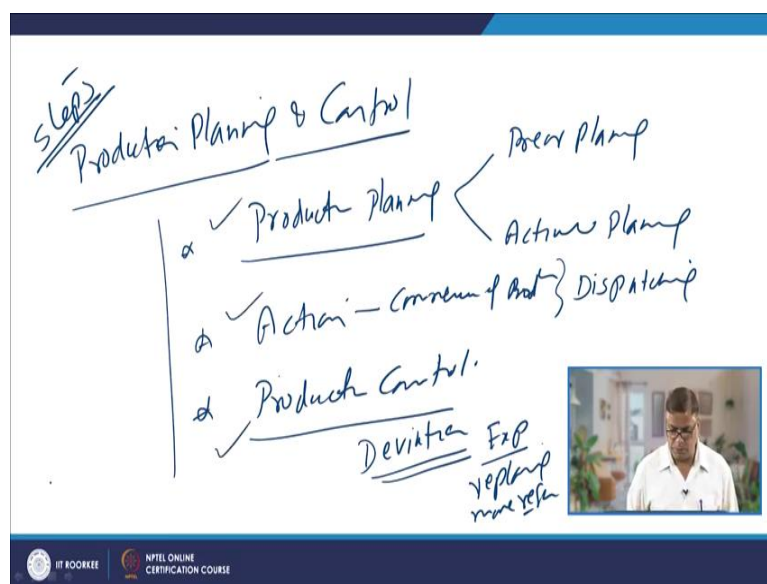
So, means whatever manpower machines are there, they are most of the time kept engaged and the breakdowns the delays related with these resources are minimised. So, that it is more effective or maximizing the use of the resources. In form of like say, the man, material, machines whatever resources are available with the organization. Another important thing is as I have said in the beginning, goal the main goal is to increase the productivity. So from the same resources the increased number of the goods can be produced.

Then we have the realizing the production goals, realize the production goals in form of quantity, quality, cost and time. So, whatever goods are to be produced, they are produced in

the required quality, quantity, cost and time. Another need to utilize the production planning control in organization is, to have the smooth flow of the work across the interfaces as I have explained. The flow of the work through the different departments, sections, divisions must be smooth and this is facilitated through the proper coordination among the departments.

Then the one more the purpose of using the PPC is to provide the good quality products to the customers at competitive price, so that the position of the company in the market can be consolidated and the customer base of the company is enhanced.

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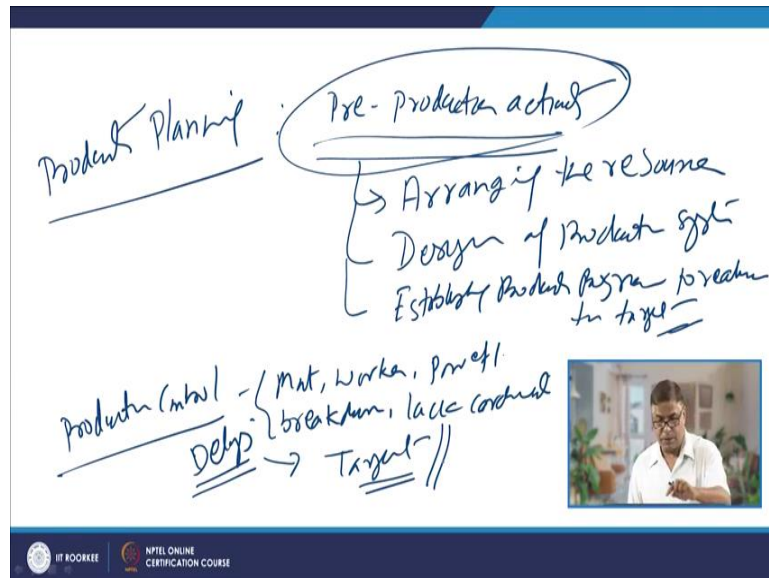
So, if we see how it is realized as I have said, PPC involves the production planning and control, production planning. So, initially we will be talking about the production planning and control. So, there are certain stages or steps in the production planning and the control. These steps include like production planning has the two aspects.

One is the Prior Planning, and the second is the Active Planning. And then there is a, Action phase and third is the Production Control. So, in action phase basically the commencement of the production takes place and for this whatever the relevant orders are there to the shop floor to start the production, that is given through the dispatching and in the production control it looks into the possibilities of the, it looks into the progress and then identifies, if there is any deviation from the planned production.

And that deviation considering that deviation suitable corrective action is taken in form of expediting, the re-planning adding more resources, so these are the control related things. So,

what is the scope and what are the different things which are done under these stages of steps of the production planning and control, production planning, action and the production control about that we will be talking.

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So, in case of the production planning, what are the things which are mostly done? This activity is this is basically the, Pre-production activity, before the commencement of the actual production, the production planning is done, and what for it is done? It is done to see that whatever the resources are needed, they are arranged.

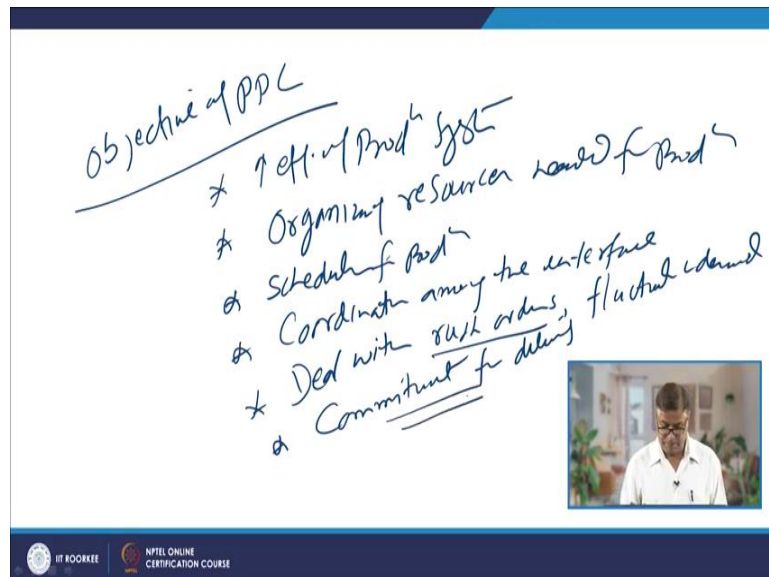
So, arranging the resources, then designing the production system. Design of production system like what technology, what materials, what will be the route, how it will be realized? So, designing a production system to see that the required quality, quantity and in the required time the item is produced in the at the desired cost.

And then, establishing it helps also in establishing the production program to realize the targets, so that required volume of the production is a realized in time. So this is the pre-production planning activity which is done in form of the production plan. And then as far as the production control is concerned, we know that the like say material is in shortage. The workers are not turning up or workers or poor efficiency of the workers or the machine breakdown. The breakdown of the machines or lack of coordination, poor coordination.

So, because of these there can be so many delays in production. So, if the production is getting delayed or the production rate is reduced, then we may find that, the target may not be

achieved, even if there is the possibility that target will be missed, then we need to control the situation through adding more resources, changing the plan, modification of the production schedule. Giving the over time or means we need to do something else, so that the target production on time can be realized.

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So, that is what is done under the production control. As far as the objectives of PPC is concerned among the objectives, what we have? We want that, the plan is developed in such a way that, there is increase in the efficiency of the production system. Means the productivity is enhanced, then organizing the resources as per the demand which obtained through the forecasting, the possible demand, how the demand will be met? What kinds of the material we need? What is the volume of the units that are to be produced?

And to produce that volume what kind of capacity that will be needed? What will be the material, man, machine requirement will be there? So, organizing the resources needed for production that is the another important objective of the production planning control. Then developing the suitable schedules for production so that the flow of the material through the different stages of the manufacturing is in such a way that at the end the organization is able to produce the required quantity of the units in the desired quality at the desired cost.

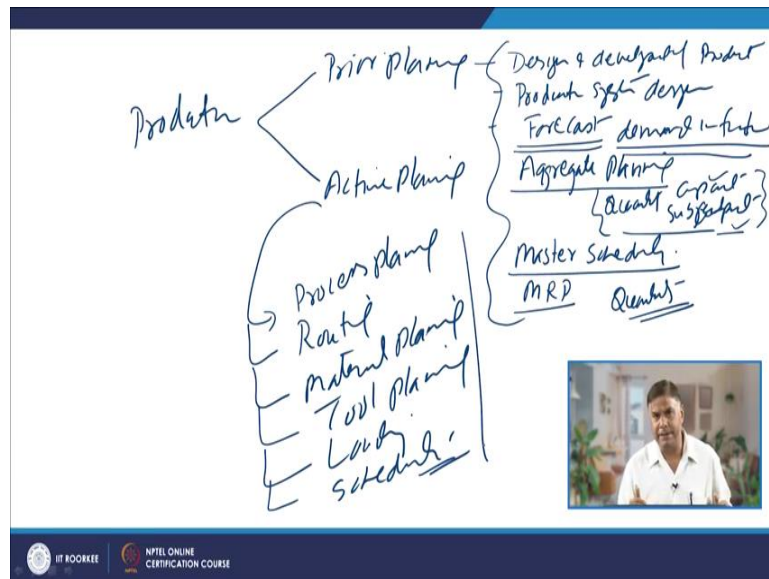
And the fourth important objective is the coordination among the interfaces, among the different departments, sections, divisions. So, that there is smooth flow of the work. It has also to deal with deal with the fluctuating demand conditions, like suddenly so many orders are received dealing, with the rush of the orders or sudden the fluctuations in demand. Then it



also the objective of the PPC is also to facilitate about the commitments for deliveries. So, based on the ability to produce the required volume of the units in on time, the suitable commitments regarding with the dates for the deliveries can be made.

So, as I have said there are three stages of production planning and control. These are like a production planning, then action and then production control.

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So, under the production planning what we have, basically the two stages as I have said. The prior planning and the active planning. So, in case of the prior planning, this is done much before the commencement of the production commencement of the actual production. So, it starts with the like say, the design and development of products.

This is very important thing like say, prior planning can be long term, medium term or short term. In case of the long term planning which kind of the products will be brought in future, to satisfy the requirement of the customers. So, considering the possible technological developments under the kind of the customer demands which will be there. Newer products are designed and they developed, they are tested and thereafter their production will be launched.

So, considering the requirement of the customers, the future demands for the newer features, newer products are designed and developed. Then thereafter, production system design of the production system. So, how the product which has been designed will be manufactured using the suitable technological or the manufacturing processes.



So, that it will be made available to the customers in the required quality. So that is about the production system design, then forecast. Under the forecast based on the history related with the demand for particular product possibilities for the demand for the future is forecast.

And based on that forecast the production planning function will be identifying the resources that will be needed. So, it will be identifying the demand in future and based on that, production capacity the kind of the inventories to be maintained. The kind of the manpower that will be hired or it will be lead of or it will be fired as per the forecast. So, forecasting is about the kind of the identification of the demand which will be therein future, then aggregate planning, aggregate planning.

In the aggregate planning basically identification of the quantity of the various components, sub-components that will be needed on a particular time. So, with the respect to time when which component or sub-component that will be needed that plan is developed. So that entire component can be made available or can be produced to satisfy the demand of the customers. Basically, identification of the number of units or quantity that will be required at a particular time. So, that the production goes on smoothly to meet the targets, then we have the master scheduling.

In case of the master scheduling, basically the identification of the when what will be produced, so that the required targets are realized. Then MRP, Material Required Planning. Under this, basically the quantity of the various materials is identified under the time these materials are needed is identified. So these are the different things which are associated with the prior planning and as far as the active planning is concerned it involves the process planning. Then the Routing, then material planning, then tool planning, then loading and then scheduling.

So, these are the various activities which are done under the active planning component. Now, summarize this presentation, in this presentation basically I have talked about the scope of the production planning, need of the production planning and what are the various activities done under the production planning and under the production control. Thank you for your attention.

