Management of Inventory Systems
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Lecture - 06
Inventory Problems and Selective Inventory Management

So, during the second week for the course Management of Inventory Systems, a specific topic we intend to discuss that is the Inventory Problems and Selective Inventory Management.

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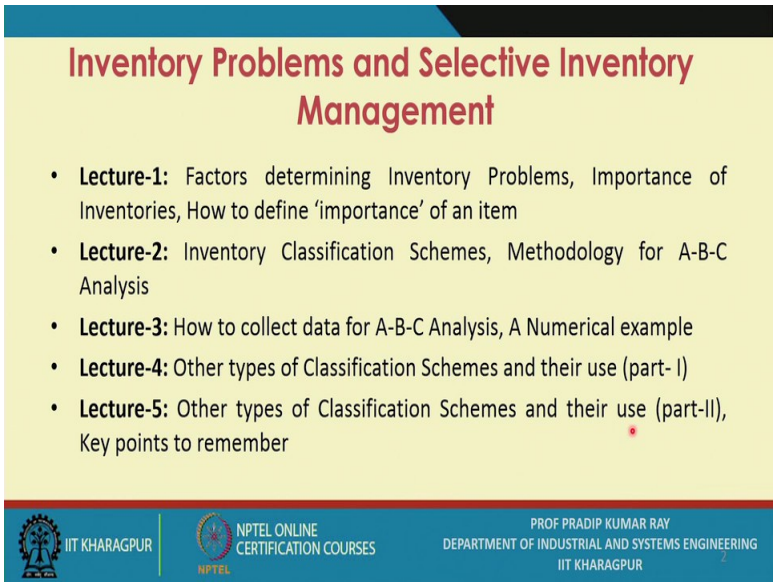

Now, this is a very important so the issue and that is why at the earliest stage of our course, so lectures so we have included this topic. Now, as you are already aware that you may face in all likelihood different types of inventory problems, as there are different types of inventory items in an organisation and there could be the different types of inventory control policy being adopted by an organisation at any point in time.

So obviously, it is expected that the inventory problems may be of different types and you have to a selective in your approach in the sense that as a priority you need to select those problems which are considered critical or which are consider critical to save

organisational performance.

Now, during this week this particular topic will be addressing and there will be 5 lecture sessions, in the first lecture will specifically identified the factors which determined the inventory problems. So, you must have thorough idea about these factors and you will get on the completion of this particular lecture you will come to know or you will have a list of list of factors to be considered for defining the inventory problem.

Then the next the subtopic to discuss that is the importance of inventories how do you define the importance of an inventory item and how to define importance of an item. So, this that the 3 issues will be discussing during lecture 1 lecture 2 will address inventory classification schemes, that may be different types of classification schemes you may come across. So, you must have a thorough idea about all the schemes and the specifically ABC analysis related to ABC analysis what kind of methodology you will adopt for carrying out ABC analysis for the given set of , so this will elaborate.

During lecture 3 we will be discussing the methods you may adopt for collection of data for ABC analysis is it and a typical example a numerical example we will take it up. In the next lecture 4 other types of classification schemes and their use will discuss in detail and similarly in lecture 5 other sets of classification schemes will discuss; that means, the continuation of the earlier the lecture topic. So, that is why you are saying it is a part 2, that means second part there is large number of you know it is a classification schemes you need to adopt.

So, one by one each of this schemes will discuss in detail and whenever possible we will bring a numerical problems against the particular scheme, then towards the end we will specifically highlight the key points to remember; that means, as a learner as a student when all these lecture sessions are over. So, at the end of the second week so what are the important points you need to remember or what are the important aspects you have learned, so this we are going to highlight.

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Now, during the first lecture session right at this moment we intend to discuss 3 important the issues first one is the factors determining inventory problems. So, this is the first issue the second one is the importance of inventories this is to be very clearly understood that 1 item is considered important, on the second item or the next item may not be considered important in a given context. So, the context must be known and as well as how you are attaching importance of to a particular item that also must be clearly understood and then of course will define importance of an item in specific terms.

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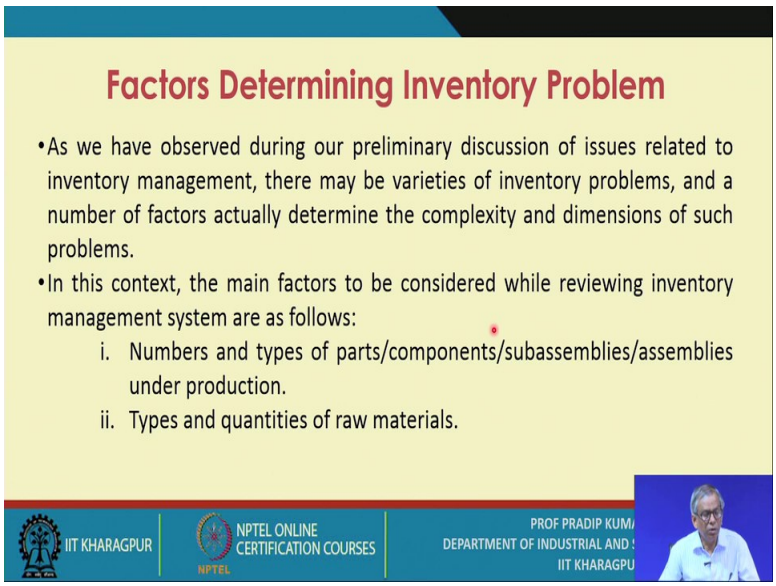

Now, let us the talk about the factors which essentially determine an inventory problem, so we have make some comments. So, let me first go through all these issues or all these so the background information one by one, we have observed during our preliminary discussions of issues related to inventory management; that means, you please refer to the lecture sessions in the week 1 or in the very first week we have introduced the concept of essentially we have introduced the concept of inventory and materials management, including the systems part there are many important issues we have highlighted.

So, referring to these issues you know what we have concluded that there may be verities of inventory problems it is not the just given organisation you come across only one type of inventory problem ok. So, there are varieties of inventory problems usually and in number of factors actually determine the complexity and dimensions of such problems. Dimension in the sense that supposing you are dealing with large number of items, so it is expected for it is expected that there may be large number of inventory control systems.

Assuming that each item is a unique 1 and the conditions on under which all these items are getting purchased this conditions vary from 1 item to another and because each item swaps specific purpose. So, the dimensions of the problem you need to consider and similarly the complexity; for example, you know you know what is the demand of an item, you also know that the demand could be a variable and is the stationary or non stationary you know the demand of situation you may come across. And the lead time could be constant lead time could be a variable and majority of the cases suppose you find that the demand is a variable. And so also lead time and you also assume in when you try to formulate the problem of a of a the real world situation in respect of inventory management or inventory control and management you may find that that actually the demand and lead time they may be related.

So, it is a very complex situation so this the level of complexity you must know and what are the factors actually determining the complexity of the problem also you should be aware of. In this context the main factors to be considered while reviewing inventory management systems are as follows; that means, you know whenever you find you visit

an organisation and obviously, you come across different kinds of inventory control systems for all these items. So, there is there are a large number of existing inventory control systems and there is a system, so that it is a good or bad acceptable or non acceptable that is a different issue, but there is a systems and that is why you will find that there is an inventory is visible for that particular item; that means, someone has taken some decisions based on some inventory control systems.

So, the first thing you need to do that whatever may be the inventory management systems you need to evaluated and through evaluation through review of the existing inventory management systems. So, we will come to know you know you will have many background information and there are you will come to know the reasons of say reasons of goodness of a particular inventory control systems or there are that could be some thirty merits of the existing systems. So, you will come to know essentially the what are the factors actually the responsible for making an inventory control system a good one or a bad one.

So, while you asses an inventory management systems you should be aware of the numbers and the types of parts components subassemblies assemblies under production. So, this is point number 1 point number 2 is you are aware of the types and quantities of raw materials.

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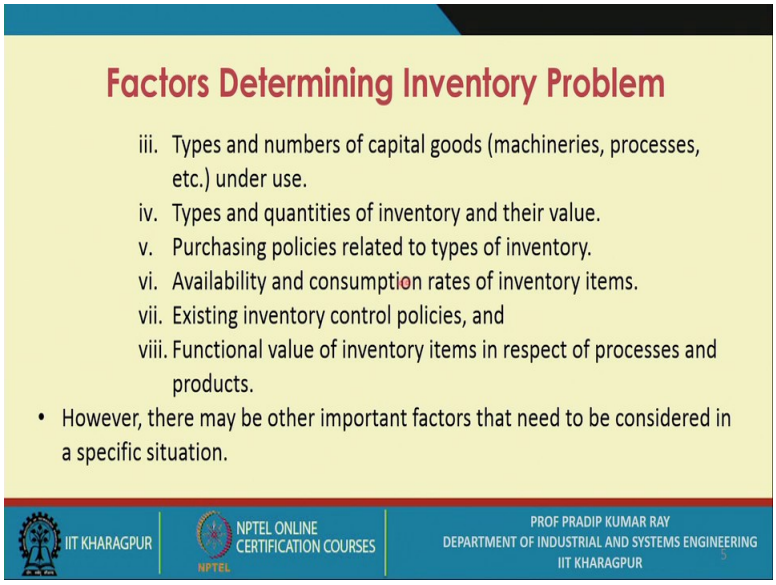

Point number 3 types and numbers of capital goods a varieties of capital goods you need to use in a in a typical production systems. So, what are these capital goods they are all considered inventory missionaries of different types processes of different types etcetera etcetera. So, we look into different types of processors their performance their functions. So, like so the different kinds of machine tools you need to use the cutting tools machinery equipments.

So, all these you know the details about the types on the numbers you should be aware of, types and quantities of inventory and their value like will take of one important issue called evaluation of inventory. So, there are different types of the inventories and again switch type at any point in time, you need to determines it is level or the position inventory position and the corresponding value in monetary terms.

Purchasing policies related to types of inventories the purchasing or the procurement function is an important function already we have mentioned and that could be different types of procurement policies for different items different inventory items. So, you should be aware of availability and consumption rates of inventory items. So, so this availability also you must know and the consumption rates, so consumption rate also may vary over time of an inventory item so this the data you must have.

Existing inventory control policies which is which are very closely linked with the

purchasing policies in majority of the cases and the functional value of the inventory items ok. So, the value of the inventory items now the value can be expressed in 4 different ways, so the first one is definitely the functional value or the use value.

So, whenever you refer to inventory control problem related to particular item. So, the first thing you should be aware of that is the functional value of that particular item at that point in time. So, in respect of processors and the products; that means, while you define a particular item and define the particular items value of particular item. Now, you should be aware of the that particular item is in which particular processes or one process or multiple processes that particular item is used or it may be used in that in the final product ok. So, you must have very clear cut ideas about all these and accordingly you can define it is functional value, how important that particular item is with respect to the process performance or with respect to the product performance.

However, there may be other important factors that need to be considered in a specific situation; that means, we have identified you know eight specific situations ok. In the list will find that there are you know eight sorts of situations, but in a given situation for in particular specific stations there could be other factors also you may come across ok.

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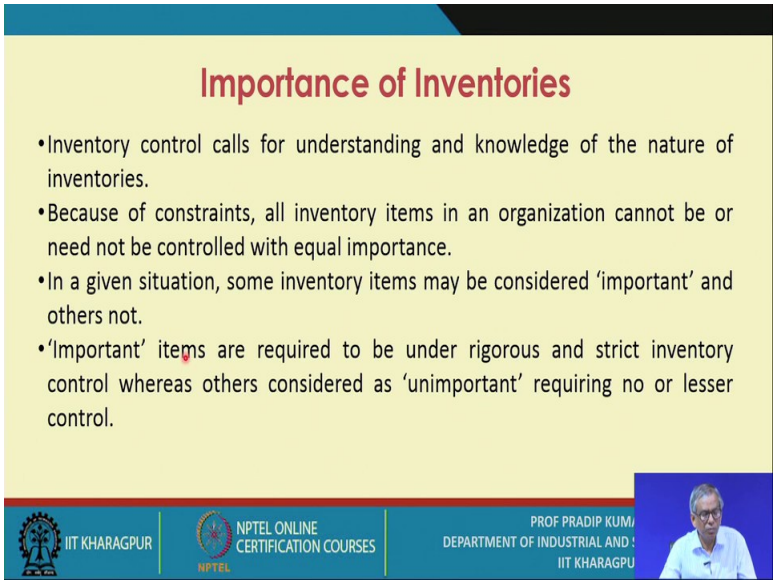

Now, the next important issue is the how do you define the importance of an item ok, though either the item is very very considered important or you might say in a given situation I have you know the studied it is its use or it is functional value. And I might say, that it is not that important it is lesser importance or in certain situations you may find that the item is considered the least important or unimportant.

So, the question is how do you define the word called importance, inventory control calls for understanding and knowledge of the nature of inventories. So, the point to be noted that is the nature of inventory because, of constraints all that you will later on you will come to know that when you try to model an inventory control problem. So, what are the you know the constants you need to consider. So, later on we will take of these issues that means, inventory modelling under constraints initially you start with an ideal situation; that means, inventory control modelling or inventory modelling without any constraints.

But in the real world you need to go for an inventory control systems under constraints, so because of this constraints all inventory items in an organisation cannot be or need not be controlled with equal importance ok, so they are not equally important. In a given situation some inventory items may be considered important and others not, so this point already I have highlighted.

Important items are required to be under rigorous and strict inventory control ok; whereas, others considered as unimportant or less important may require no or lesser control this is obvious in fact because, you have a limited time a limited resource and this resources need to be mobilised or need to be used to control the inventory. So obviously, in a given situation under limited resource condition you need to be very very particular; that means, first the priorities to be given to the important items.

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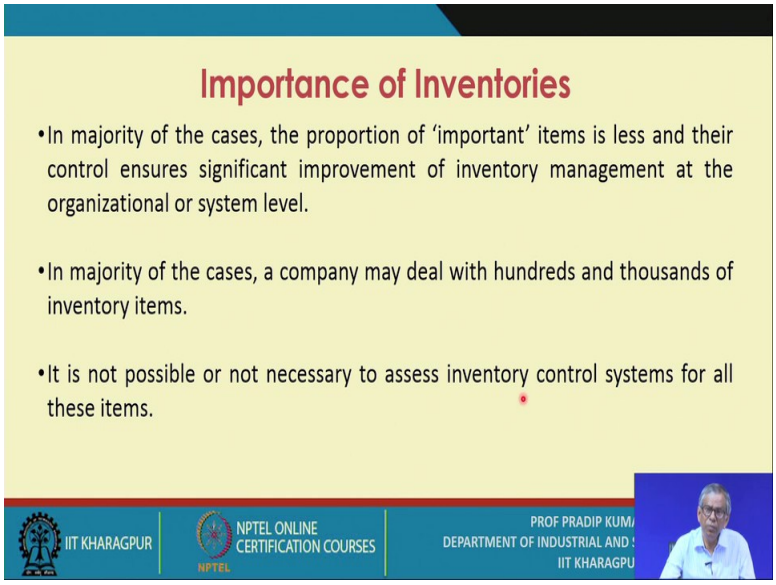

In majority of the cases the proportion of the important items is less may be 10 percent 20 percent and their control ensures significant improvement of inventory management at the organisational or the systems level is it ok. So, this is we have observed and you can you know when you get the data from an inventory control systems or multiple products in an organisation, so you come across the situation.

The majority of the cases a company may deal with 100 and 1000 of inventory items. So, is a typical you know the discrete part manufacturing systems; it is not at all uncommon to find the situations it is not at all uncommon that the company may be using some 50000. So, the items under inventory control systems or there may be 100 1000 items, we are dealing with a product which you are manufacturing it may consist of like in it is bill of material may consist of 50000 or 60000 items of various types ok, various kinds of raw materials you may have to use for those products so this is very very common.

It is not possible or not necessarily to assess inventory control systems for all these items; that means, you just cannot take a blind approach right. So, you have to very very particular so that is why this particular point and need needs to be understood in a given the situation it is not possible or not necessary to assess inventory control systems for all these items, even if there are existing inventory control systems for all the items.

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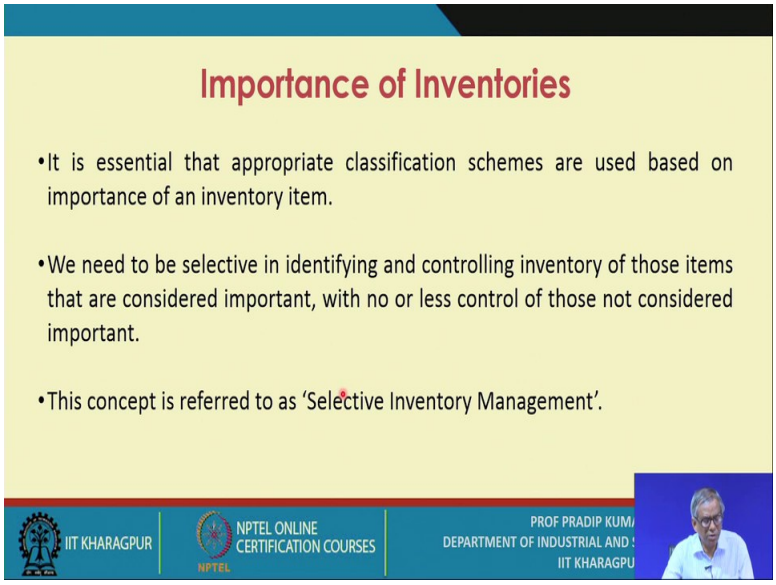

It is essential that appropriate classification schemes are used based on importance of an inventory item ok. So, first you try to classify them and from different perspectives, we need to be selective in identifying and controlling inventory of those items that are considered important with no or less control of those not considered important this concept is referred to as selective inventory management ok.

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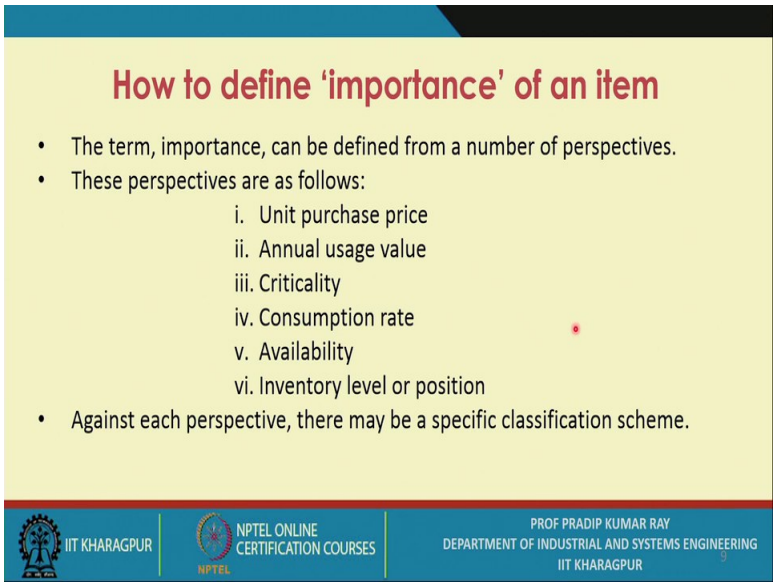

So, the selective inventory management as a rule is applied in almost all the organisations, particularly for the large and medium size organisations this is a must for a small organisations or for a start of company when the you know you may come across or the product which you are handling, it may consist of less number of items may be twenty 5 items or on the 60 items in a given situation and that is the only product right. Now you are producing obviously, you will have you must have very very strict control on the on their inventory management systems for each and every item, but as the company grows so also it is it is. So, number of items from the number of products so this is applicable; that means, selective inventory management as a rule is applicable for all the larger organisations.

Now, the next important issue we are going to discuss that is how to define importance of an item this is very very important, the term importance you have been using this term, but now we need to define it in clear and explicit terms. The term importance can be defined from a number of perspectives, so these point you must remember now these perspectives maybe many and out of many such perspectives; now the 6 specific perspectives are common so we are naming them.

The first one is unit purchase price, so whenever you get an item the supplied from an outside supplier; now unit purchase price which is negotiated and which is agreed upon is known. So, if so you say that I will say the these in these item is important because, it is unit purchase price is very very high. Similarly, so unit purchase price may be low, but the number of units you consume per unit of times say year may be very very high. So, the next important say the criterion with which you define importance of an item is annual usage value ok. So, will explain it later on essentially it is a it is annual consumptions in physical limits multiplied by the unit price, so it is in monitory terms.

Now, the importance can be defined with respect to an items criticality, mainly we are focusing on it is functional value consumption rate is another very important perspective in inventory control, next one is the availability ok. So, sometimes availability is a problem and if the availability is a problem; that means, you know you face serious problem in running the inventory the control systems and inventory management systems in your organisation. So, availability is an important criterion and the last 1 is the

inventory level of positions at any point in time ok. So, these are the 6 factors you need to consider and against each perspective there maybe a specific classification scheme ok.

So, so with this of understanding what you can do; that means, you can identify or so an item considered to be important or unimportant. Now, let me elaborate on the say particularly the 2 aspects 1 is the criticality and the second one is the availability.

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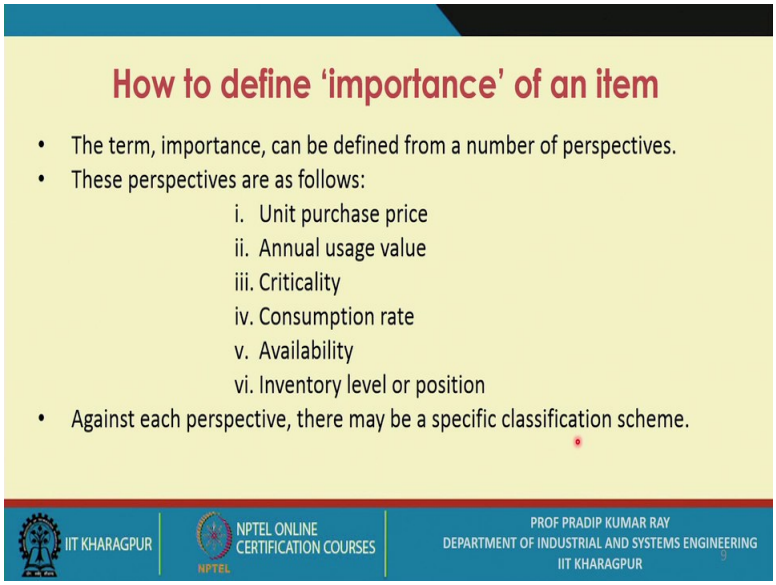

Criticality refers to a situation where the items the performance is considered and suppose it is a capital equipment item a machine tool a machine tool. So, it may so happen that because of say you know the non-functioning of a particular part the machine tool the stops working ok.

So, this is this may be a very common occurrence in many instances in many situations so and when you start approving the situation you may find that that particular item is not at all expensive ok. It is a it is prices it is a cheap item and the price is very very less, but still as for as the function of that particular units say machine tool is conceive considered this is very very critical; that means, if this is not in good condition or acceptable condition the machine tool may fail. So, there could be a break down situation, so this is very very critical and if it is not made available suppose for that

particular item you would you have not bothered about it is inventory control systems existing, inventory control systems and many time the shortages do occur for this particular items.

So, even if it is unit price is very very less, so availability of a particular say that particular machine tool where this particular item is used is not guaranteed. So, there may be excessive break down situation and there could be lost of the production time and it it may be very very expensive. So, this point is to be considered very minutely while you propose an inventory control system.

Similarly, the availability now normal is a suppose you are different you have different types of items to be used for the production of your goods or production of your product. Now it may so happen that out of say 100 items listed in the bill of material, suppose the 10 items you need to be there that to be imported from say a few foreign companies and so obviously, get to be imported and suppose these items are to be imported from an outside country and you have to follow the certain procedures and the rules very strictly because, it comes in the domain of the international purchasing.

So, you have to be very careful in determining the inventory control policy for such items and mostly these items are imported and the scarce items. So, the availability has important factor to be considered, some of the items you know are made available in the in the local market and as an when you need it. So, immediately with a simple call to the concerned person you get the item supplied, how many time for such items you can have a direct computer to computer purchasing systems. So, availability is not a problem but supposing that particular item is not available in the local market, but it is available in available in another part of the country and for which that means, of in another region and the company which the supplies is item essentially you know it is this company is situated or located in another region of the country.

So, the lead time of procurement may be very very high substantial and those items are basically called you know not that critical, but those items is difficult to procure we said difficult to procure, so those are classified as difficult to procure. Then the another important issue that is inventory level of position, I have already mentioned in the

previous lecture session that while you try to assess the performance of an inventory control system; one important factor need to be consider that is the level of under stock or the level of over stocking. So, you need to constantly monitor the inventory level or inventory position of an item, so it is a function of time and it is a obviously, it is also the inventory control systems affects the level of inventory of position inventory at any point in time.

So, at any point in time given an item suppose you find that the inventory position is a very high level, so at that particular point in time or during this period of time, so that particular item becomes very very important to you. That means, you need to take a decision first how to dispose of the extra inventory or extra stock that you have that is point number 1, that is that the immediately you have to take a decision. But you need to look into or you need to assess existing inventory control systems; and you need to so the develop and improved systems for inventory control or such that an item ok.

So, I conclude this particular session and I hope that that this important support items should be clearly defined and accordingly the classification scheme is to be developed. So, in the next lecture sessions will be referring to all these classification schemes.

Thank you.