Project Planning & Control

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Lecture – 16

Lesson - 04

Summary of Key Topics, Types of Networks

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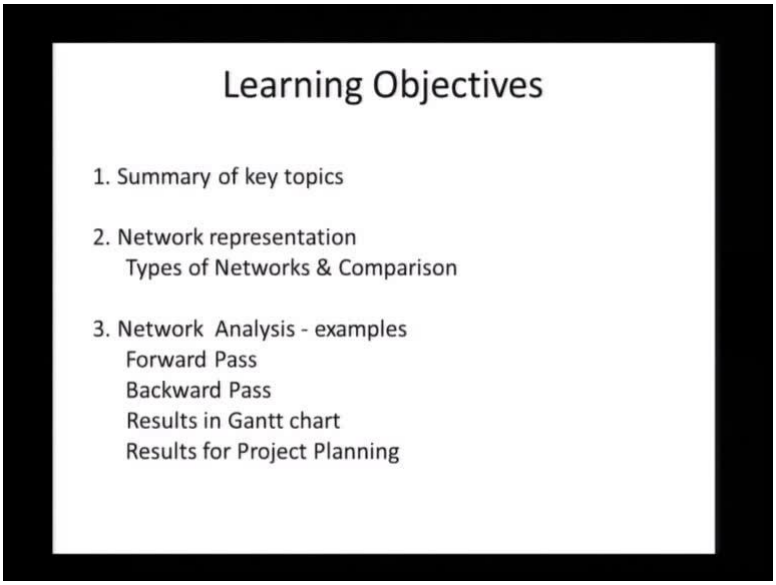

Welcome to lecture 6. This is probably one of the most important lectures because it sets the base for critical path method. And the title of the lecture network representation analysis, this is part one of the lecture. What I would like to cover here is. First, I think this is being lectured 6, we have covered quite a few of topics so far; I would like to summarize few of this topic which you have covered. Get into network representations, look at types of networks and comparison between the network and then get into the analysis side.

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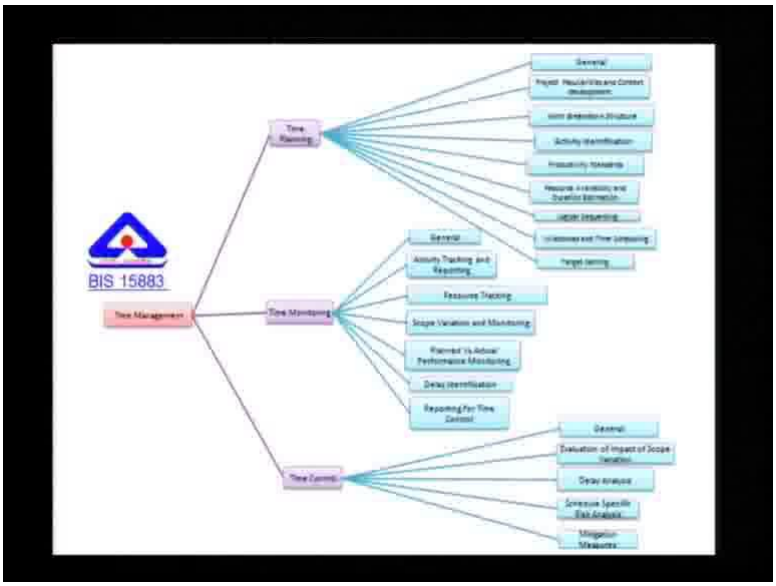

So, we learn about forward pass, the backward pass, no express results in a Gantt chart and then look how some of the results can be using project planning. Now as we go and take a look back if you recall, we said that there is a time management standard for the Indian BIS, and you will see that we have covered quite a few of the topics which are under time planning. So, we actually covered work breakdown structure, we talked about in identifying activities, we talked about productivity standards, we talked about duration estimation resource availability. So, all this we talked in terms of is duration estimation. We were not spending too much time on logical sequencing, but that will come as we go along the course, this is very important, will spend a little bit of time in today on it.

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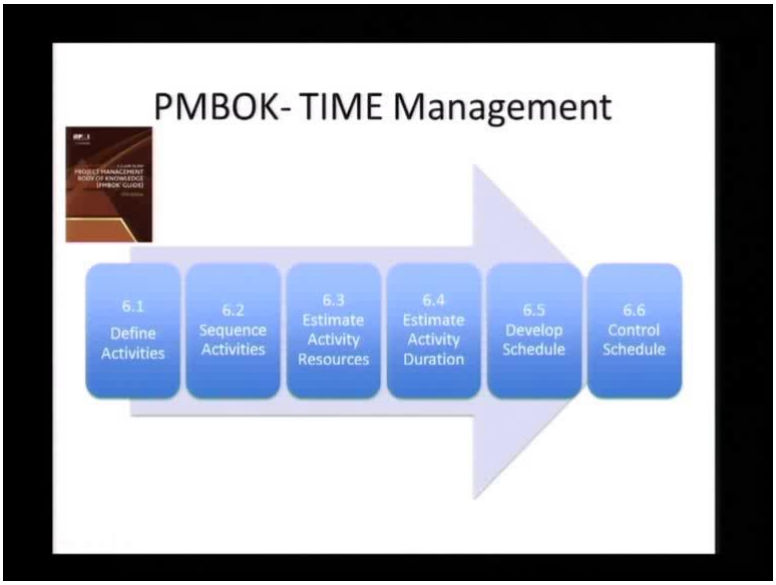

And we then have to look at milestones and time scheduling. So, this is the way that the BIS standard looks at it, and we are looking at the PMI, the PMI, the PMBOK standard; these are the elements of time management. We are defining activities, we have sequencing activities, estimating activity resources, estimating activity duration is developing the schedule and controlling the schedule. So, if you look at the PMI framework what are the what are the elements we were covered in detail.

Student: ((Refer Time: 02:11)

Yes, sequences like a said, we are come back to the sequence throughout the course the sequence is important, but until we take the case study you will not be able to get into the details of sequence, and we get into ((Refer Time: 02:31)) precedence diagram also sequence becomes important, so it something that will come through the course. What about estimating activity resources we have kind of covered with duration. So, we have kind of couple that both resource and duration are very much interlinked, these are very very closely interlinked. So, as you get into if you are doing the course project or something on this, you are really getting to the details of that. Otherwise like we said it is moreover practical issue rather than something which you we can cover classrooms.

So, you really have to do case studies on this, and we do some that later. So, now, we are actually on the develop schedule, so we are actually moving from this preliminary inputs to the develop schedule part and later on we will certainly go to the control schedule part.

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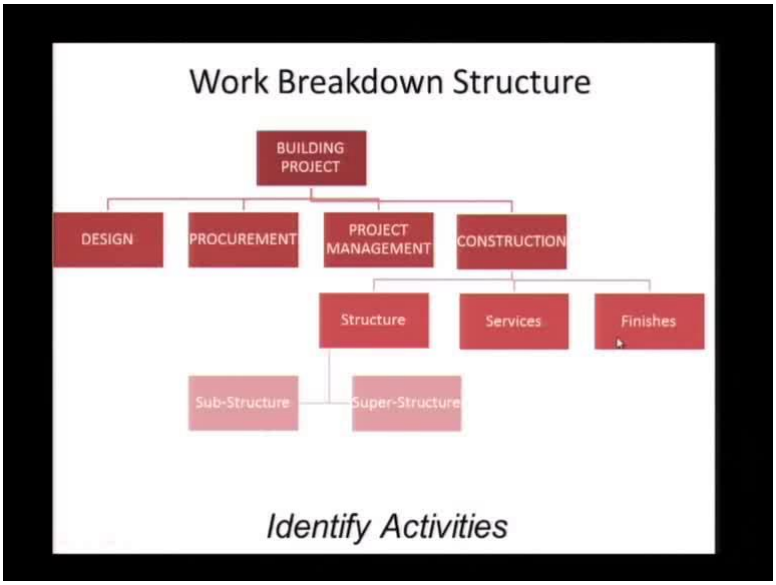

Now, if you look back, yeah…

Student: ((Refer Time: 03:20)) order...

It is typically ordered, but there can be a cyclic too.

Student: ((Refer Time: 03:29)) Estimating activity duration precede estimating activity resources?...

It can be cyclic. See, are you going to take, So, it depends like we discuss last time right, are you duration driven or are you driven by the time you want or are you driven by the resource you have. If you have a lot of resources, and you want to know the owner gives you the particular time he wants to finish that is what to do. So, for example, a lot of large constructing projects go through some other larger construction companies in our country with almost no competitive bidding ((Refer Time: 04:06)). The reason for that is the duration of this projects are very critical, and only these large companies have the resources like mobilize on this projects to finish it in the time is owner wants. So, lots of you can say that sometimes the duration is given to you the resource we have to mobilize for the duration, you have to mobilize that. And if you go about it I would not call it theoretically other way is given a set of resources you can then find duration.

Then we discuss both these approaches last time. Almost an everything critical duration important, you take Chennai metro which is going on now duration is what is driving it, right. So, how do you how I mean. So, let us discuss how does Chennai metro manage? Or how they will think first of all manage to do this in this duration? What is the contracting strategy in terms of resources, how are they are doing all this to one contractor, no they giving it to a two, three big contractors, the multiple big contractors because they can mobilize that many resources they gave it all to the single contractor might be they would have difficulty in mobilizing all that much of resources for, because it is a very big job. So, in Chennai metro I mean you cannot take years and years you have to actually finished the job you know, and the public has to use it. So, there are. So, many projects that like I mean.

So, if you take the real estate market today then the income you get out of selling the real estate the developer the real estate is far and excess of the construction cost. So, the owner will want to complete the project, and make money out to the project rather than keep you know minimizing construction cost and driving the project on. So, you will find in Bombay there are lot of very high and development projects in which the major contractor in the country has been called, because that those are the people who can actually mobilize the resources whether it is formwork, whether it is concreting whether it is earthwork equipment

they are the people who are mobilizing and finish and deliver the project in a short term.

So, again just coming back to the original question you asked sequences generally reasonable, but there will be iterations. So, you might actually you are not going all way to 6.5 develop the schedule, and then find that yeah you are not meeting the target. And then you have actually to go back and estimate resources are even changes the sequences of activities or even redefine activities; I will decide I am going to do not cast in situ constructions, but prefabricated constructions which mean the sequence itself gets I mean with the activity definition themselves changed. So, that is an iterative process without a doubt

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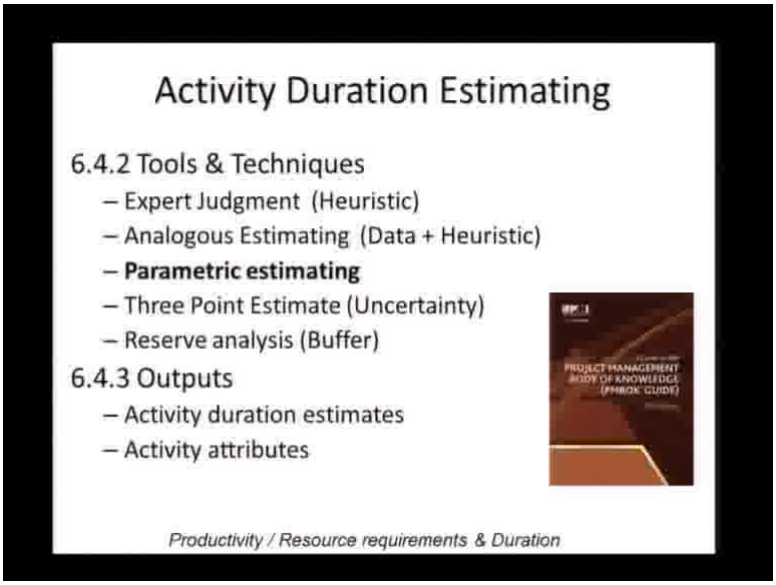

So, we had discussed about work breakdown structures, we discussed how we use it to identify activities, we discussed about duration estimating, we discussed about we spent quite a bit of time a parametric estimating by we understand that other means of also estimating duration.

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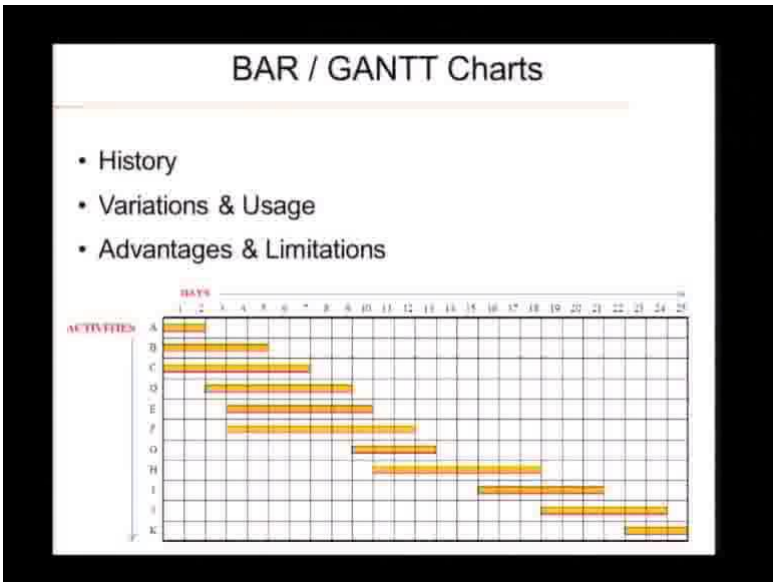

We talked about bar charts and Gantt charts; we talked about the history the variation and usage the advantages and limitations, we kind of expressed our schedule in a bar chart, we did this before we did the duration estimation, but it was intuitive enough for you to follow how it happens.

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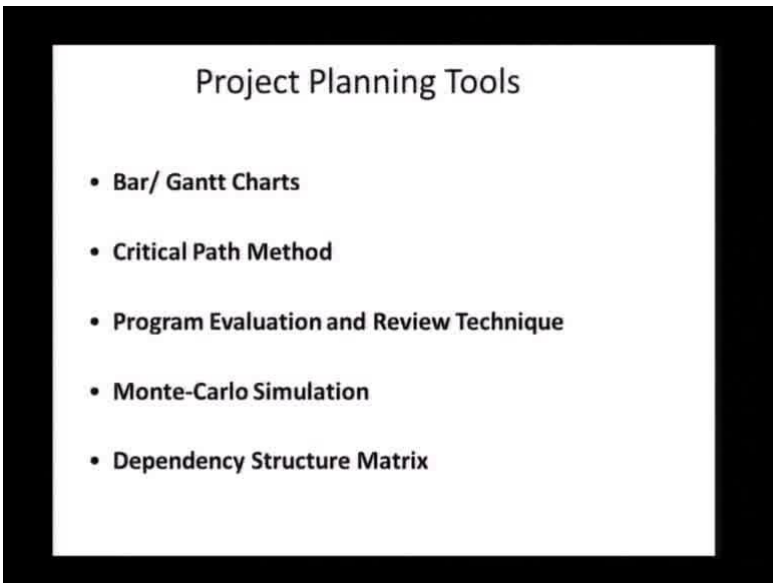

Now we want to take off basically from here in this lecture So, if you take project planning tools or the time estimation tools were certainly in a, we have covered bar charts, then we have critical path method, we have PERT, we have simulation ((Refer Time: 08:15)) Monte-Carlo simulation, and we have tools and dependency structure matrix. And we discussed how you know we are going from simple to more and more complex tools, and complexity is

not necessarily what is better, complex does not mean a better tool.

We need to use a right tool for the right situations, and our focus for the next few lectures as on critical path method. And people have found that critical path method is the right balance, it is it is a fairly sophisticated tool will see most sophisticated than the bar charts it offers things which offers methods of calculations mathematical base, which is good enough for project representation, but not too complex that we can represent uncertainties probabilities something. So, when we get into the critical path method one thing to realize, actually critical path, PERT a lot of these other techniques are can be represented in a network form.