**Project Planning & Control**

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**Lecture - 12**

**Bar Charts for Resource Usage, Pros, and Cons**

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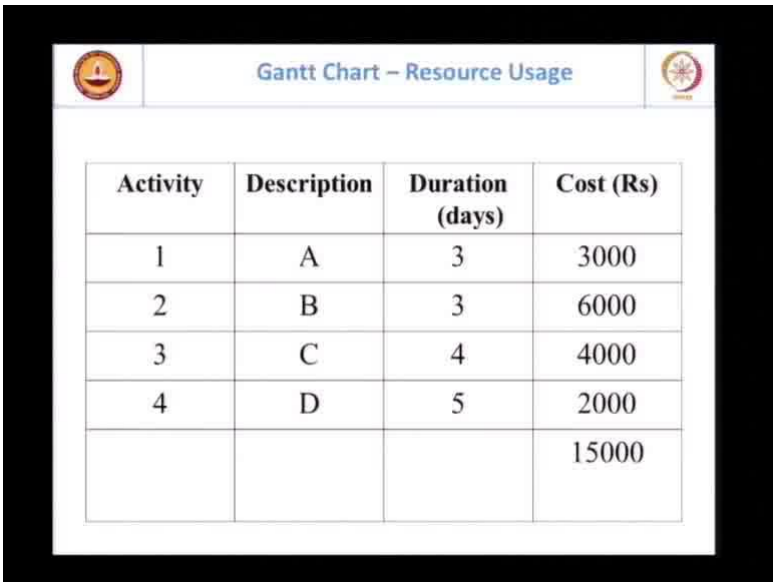


Let's move on. So, here is the another way of improving the features of a bar chart. So, here we have four activities. You can see four activities; you have duration and then actually, have specified the cost. So, you can see there is a cost; this is the total cost associated with each of these activities.

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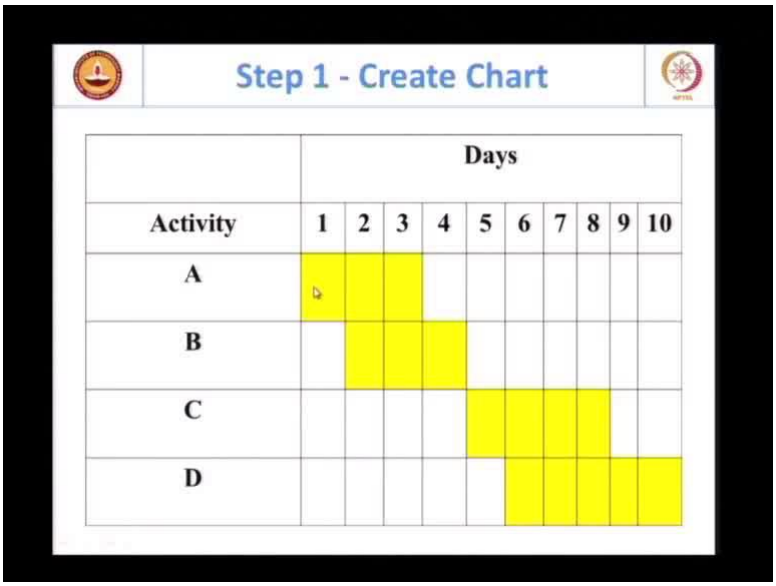


Now, as we go here, we can see that the activities now have been put in a bar chart in the following form. So, what we saw earlier that are the cost curve can be plotted, right. So, how would I now go about plotting a cost curve? So, here is some other data.

Student: (refer time: 01:08)

Yes. Yes.

So, that is one; I have to assume that my cost per day will be uniform. So, if I assume that it will be 3000 divided by 3. So, it will be 1000 per day here; 2000 per day here; 1000 per day here, and I will be yeah; it will be a fraction of the other one, and we will now distribute it.

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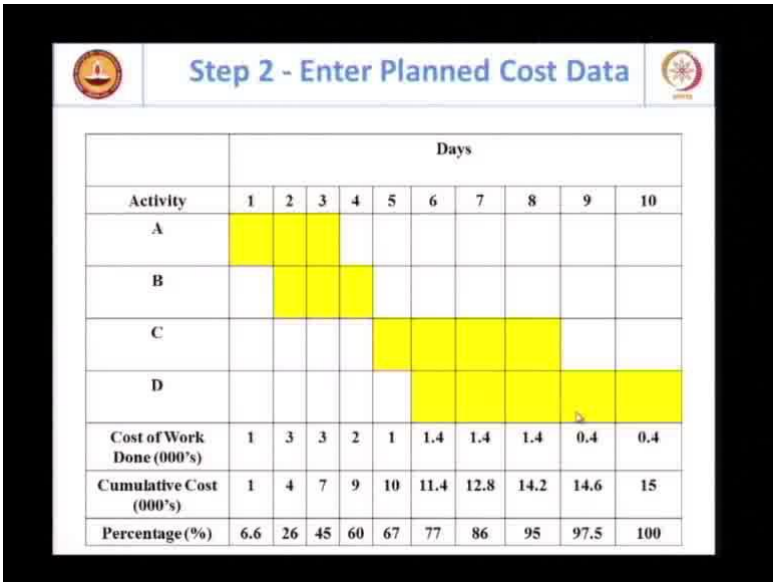

So, you will find that so here it is 1, 1, 1, 1000; here, 2 2 2; here, 1, 1, 1, 0.4, 0.4, 0.4 and when you sum it up totally, what you get is the cost for that day. I can plot this in the form of a histogram. So, I have a bar chart for how much money am I expecting to spend on each day. So, I might have to mobilize. So, let us say I am you know it is a small construction project and this cost I am talking about might be something like you know, the wage for daily labor. I might have to bring this much money to me to the site each date help me to plan my amount of money I have to spend; very simple example. Now, the same represent, the same values can be represented as a cumulative cost. So, basically all we are doing is that in the first day that is 1; the second day, it is three plus 1; that is 4. Then add 7; add four plus 3 is 7, and it goes on. So, this is how my money is flowing through the project at least, for that component over time, and this is a rough graph.

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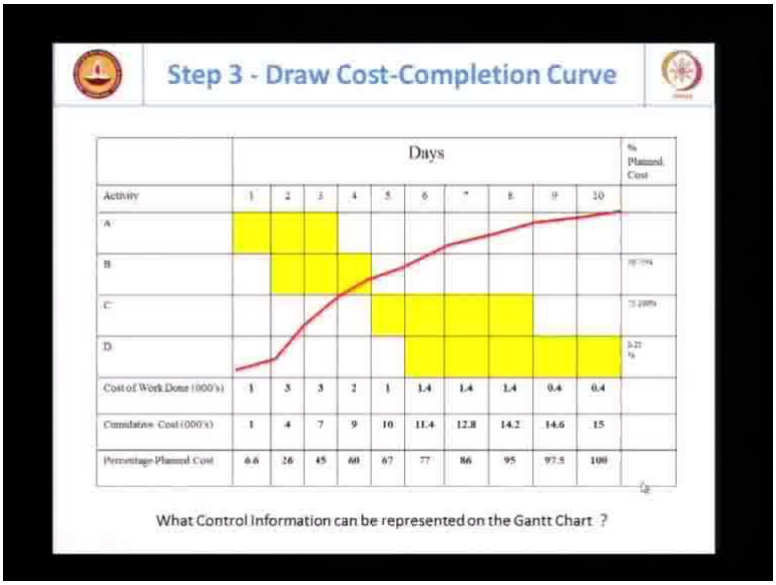


We can do this in excel, but this is a rough graph of how the cash flows for that component over time for each other days. Now, the same thing can be done in Excel, or you know; I have a demo in Excel, which I will show later, but this is just to give you an idea that bar chart is more than simply bars, which do continuous bars with related to activities. It can actually represent resources; it can represent cost; it can represent a lot. It represents depends on the power, which you want to give it and the kind of information you want to represent in the bar chart. And again, I urge you to look at the writings of Gantt, because that is what available to us and you will see that he actually used it for all these purposes.

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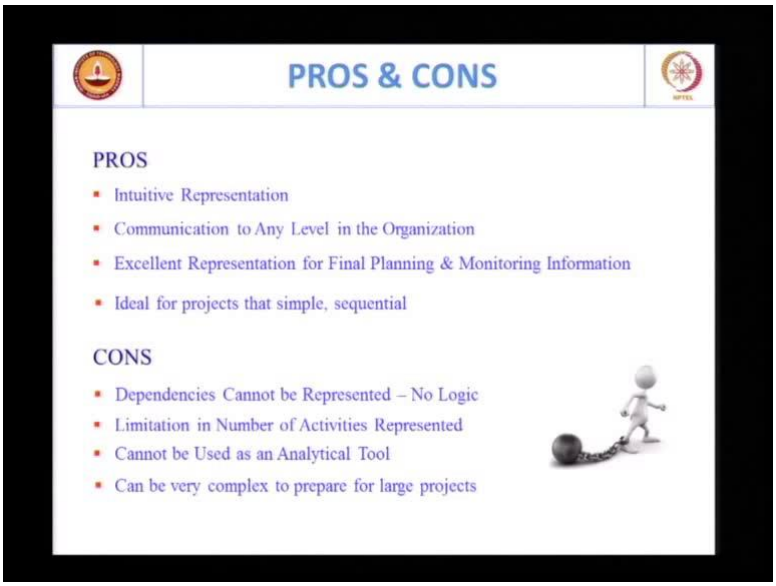


Now, we are coming to probably, I should ask this from you; what do you think are the advantages of the bar chart? What do you think are the disadvantages of the bar chart?

**Student:** Precise relationship (refer time: 04:05)

Yes. So, that is a disadvantage. That is when I have a representation like this; I do not know the sequencing is what the planner put into the bar chart. As a third person, I cannot find relationships.

**Student:** Shared between two activities (refer time: 04:23)

What resources are shared could be specified, but not that simply, yes. So, that is another one.

**Student:** (refer time: 04:33)from this progress can be shown. So, that is for say; the project has got delayed some three months. Now, the project was to be finished by (refer time: 04:42) finished by November, but it is now in February. So, the progress; we cannot show that progress actually.

I do not; you mean the delay?

**Student:** If the project is going on its schedule. So, the February, at this point, it will show, today is February and the project is showing this progress. Right, but if it was delayed so, on February 5th, we could not progress it. We have to show it in the November calendar only.

Right, I am not sure I fully understand your question or the point you are making well. You will see that there are some very sophisticated ways you can show delays and projected

finish; will come to that. So, please write this down I mean, in terms of showing where is that currently and what is the projected finish, can be actually shown. It just depends on your notation and obviously, that is not something that we can calculate manually, very easily and do it, but there are notations to show that in a bar chart.

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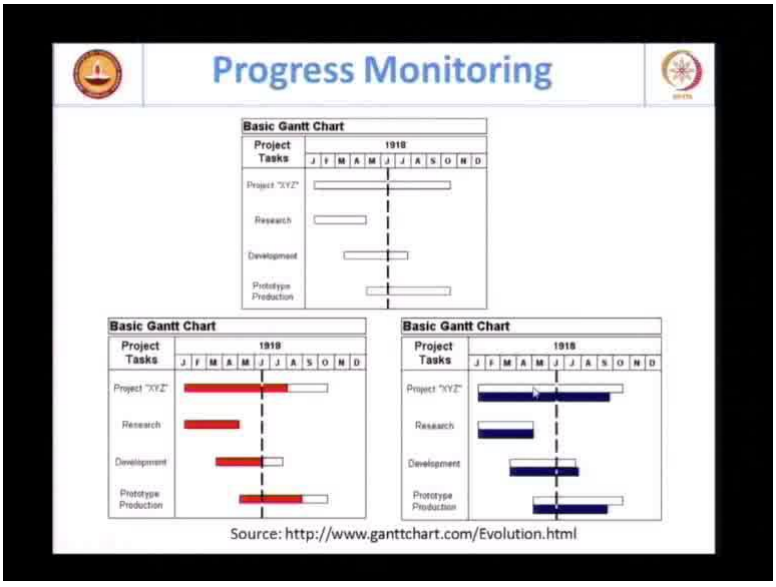


**Student:** One slide was there actually, back.

I go back here.

**Student:** Back by one. Yes, in this one. So, if the project XYZ, right, is now in January; no, July right. So, if say that the development(refer time: 06:02) is delayed by March; so, it would not be showing.

You mean, it cannot show historical.

**Student:** Historical (refer time: 06:12)

If you are talking about yes; I cannot show the delays that happened historically; in this bar, no, but if I have an earlier bar chart of that period, it will show what was the delay at that time. So, you are right; I cannot show my everything that happened on my project. So, actually if I have caught by July, then I will not be able to see what the status was in March in today's bar chart, but I can go to March's bar chart and see the issue.

**Student:** If so the development is delayed.

No, let us say project x y z. Right now, let us say it was delayed so when I was in April, there were some delay. So, I mean, I would not have been in a good situation, right. If I am

taking July's date, I cannot find out that situation today. That is, but I take back April's bar chart, and I will know my situation at that time.

**Student:** (refer time: 07:09) different color codes

I can use, but then it becomes so, again we will have to see; bar charts can be, if we I mean, basically through color coding, through symbols, through these, we can make a bar chart mean a lot, but again if the bar chart is nice, because it is simple enough to visualize, but if you make it too complicated, then we lose the purpose of the bar chart.

**Student:** (refer time: 07:33) it is difficult to use the bar chart.

Right. So, if there are lots of activities, I mean, projects have 1000, 1500 very easily; unless I start subnetting it and putting it. I cannot use just a bar chart for planning it. I may need some other methodology, which then I get parts of the project in the form of the bar chart. Other advantages or disadvantages; so, if we look, go through the list, it is certainly, an intuitive representation. We all can relate to what should be happening at what time and without too much of training or reading; we should be able to do that. It communicates to any level of an organization.

So, typically a bar chart; you will find that is used at the field execution level. We will say this much work should be done in a week, and it is also used to present results to the top management. Again, you are making a management presentation easy to represent. I do not want to show complicated networks or things like that; so, very very good communication tool. It is excellent representation for final planning and monitoring information because you can actually summarize all that quite well in a bar chart. Ideal for projects that are simple and sequential; simple sequential activities, yes, then bar chart. Now, problems; dependencies cannot be represented; we discussed that. Limitation in a number of activities; we discussed that.

It cannot be used as an analytical tool. That is all of the information that represented in the bar chart, the way we are doing it now; meaning, yes, we process the information, and we put it over there. There is no inbuilt analytics in the bar chart. When we move to more sophisticated techniques, you will see there is lot more analytics in the technique and again, when we have large complex projects with a lot of inter-dependents, lot of activities, lot of sub-activities; it again, very much related to limitation in number of activities and in logic, but it becomes unveiled, and we will not be able to use it(refer time: 09:40).

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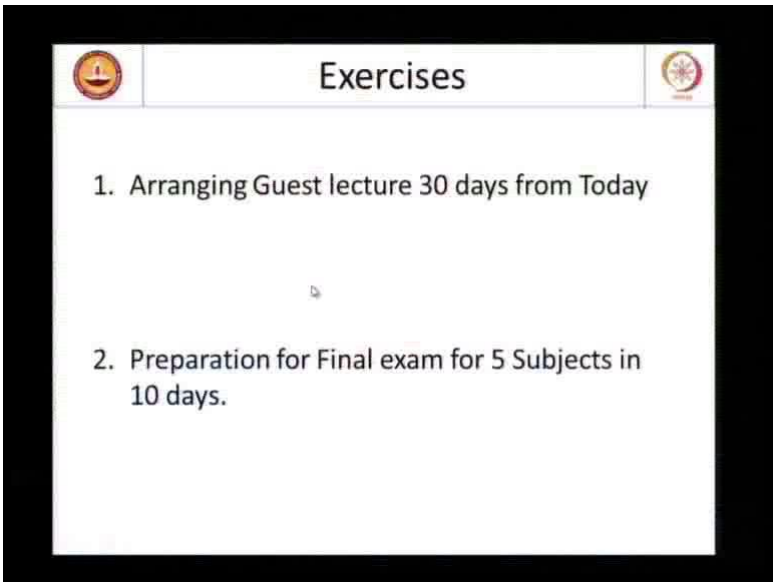


So, we have done these exercises from the planning point of view, and we have also discussed these from the control point of view a little bit, but we would probably, as we go more into the course, we will take up examples which are from the construction domain. There are any further questions or comments?

Okay, Thank you.