Introduction to Accounting and Finance for Civil Engineers

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Lecture-32
Revenue Recognition

Namaskar and welcome to this course once again. We been trying to talk about accounting and finance for civil engineers.

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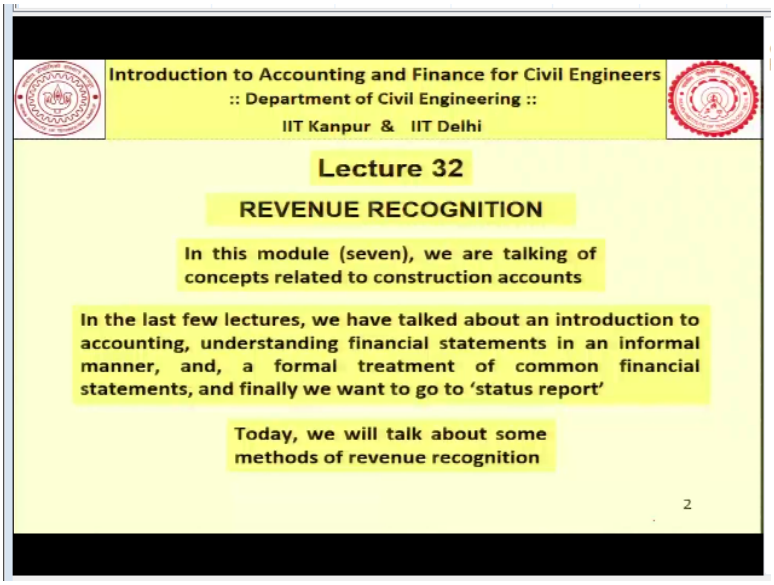

And today which is lecture 32, we will talk about revenue recognition in a construction project. In this module which is module 7 of this course, we have been talking about concepts relating to construction accounts. What we have done in the last couple of lectures, we have talked about an introduction to accounting understanding financial statements, the profit and loss statements balance sheet and so on. In an informal manner and then formal treatment of common financial statements

Before going to the status report which is something which will cover in the next class, today what we will do is we will talk about methods of revenue recognition.

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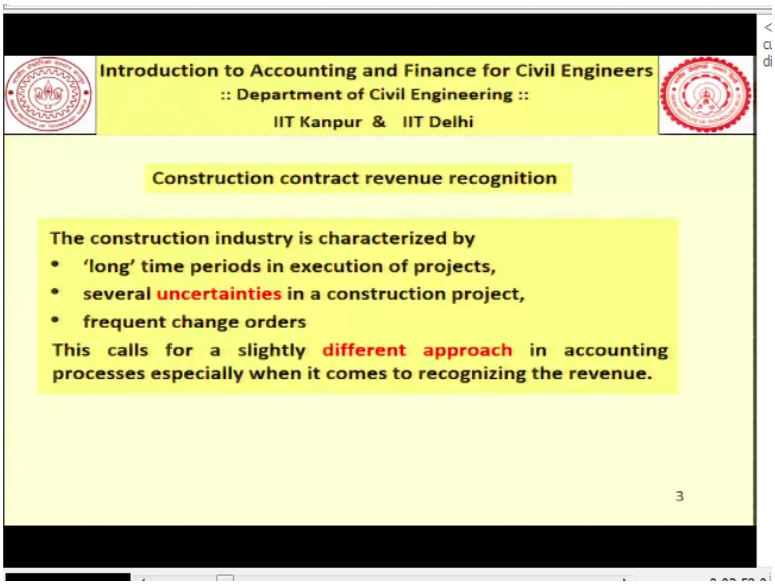

Now why does this subject of revenue recognition become important in the construction industry. It is important because it is for a construction industry or construction project or construction projects will be more specific, they are characterized by long periods of time, that is very often we have construction projects which run into several years. There are several uncertainties in a construction project, apart from that there are frequent change orders, we have talked about enough.

In this course advising you that each project is unique in itself, no matter of how many bridges you built, every time you built the bridge. It is a unique experience because a local conditions and therefore normally we can assume that no matter what the contract value and no matter what the contract. There always have to be and there is a provision that certain changes may be made to suite that requirements that site has may appear only when the construction work is going on at that particular location, out of the 20 pairs may be one particular pair you may have a very difficult situation.

That may arise which will require some corrective measures, now what corrective measures whether they should be paid for by the client or not paid for the client. Those are different issues the fact of the matter remains that from a technical point of view, for one particular pair may be the drawings, may be this specifications will have to be re-recuing, may have to be recuing a

specific form. So that is why there is changes sometimes that are made, what this means is that this industry of construction projects or more a specifically they accounts and revenues.

In construction projects we need the certain different approach it is not like saying that ok. If you go to the market you give certain amount of money and you buy a product and the transaction is complete, so in construction project it is difficult to that extent to declare that a transaction has been actually completed. So, that is what we will talking about as far as our discussion today is concerned what is the ways in which or what are the ways in which we recognize revenue. And why (()) (03:40).

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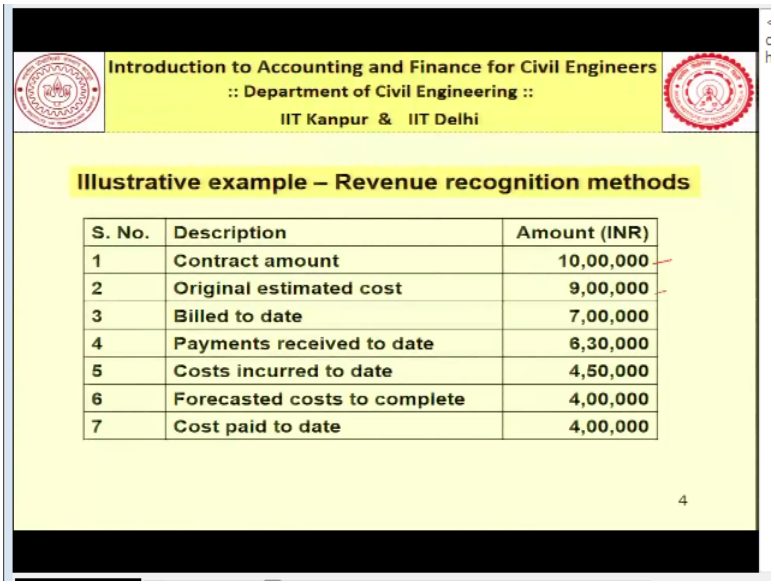

So, let us take a illustrate example before we get into the revenue recognition part of it, let us say that the contract amount is 1000000 original estimated cost is 900000, billed to date is 700000, payments received to date is 6300000, costs incurred to date is 450000, forecasted costs to completion is 400000 and cost paid to date is 400000. So, this is just a template or a form in which the data has been arranged, what I would like to go over with you as for as list data is concerned is to explain of few things which are very unique as for as construction project is concerned from this data as an illustrative example.

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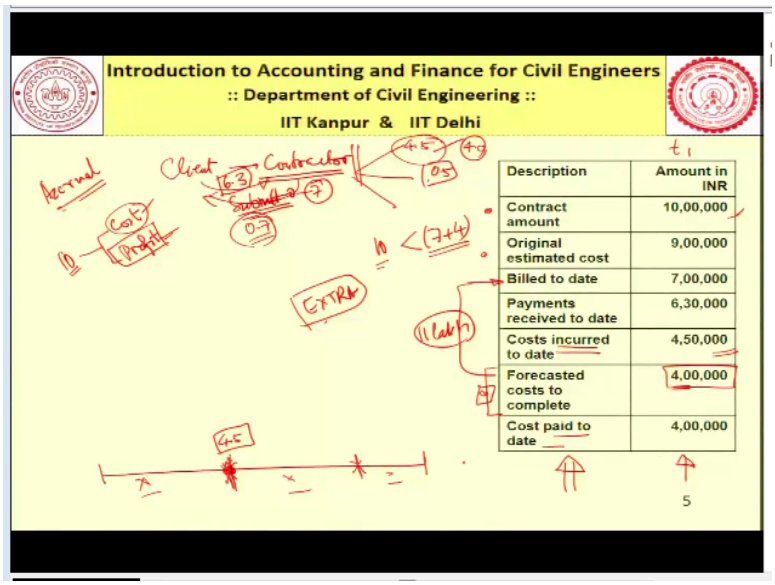

First of all I would like you to understand or keep in mind that there is a client and there is a contractor and this discussion today would be largely with the contractive in focus, that is the client will be paying certain amount to the contractor for services rendered. And as we go along as for as the time is concerned, so the projects stops here and it is going to be completed here. So this particular statement or this particular set of data is valid at a given point in time.

So, at this point in time what this table tells as is that the contract value for this particular project was 10,00,000, the original estimate was 9,00,000, billed to date is 7,00,000, means that the contractive has submitted bills to the client totally 7,00,000. And what the client has done in response to those bills is 6,30,000 have been released to the contractors. So, this 6.3 has come to the contractor at this point in time.

On the other side of it the contractor is also incurring certain expenses. So when it comes to cost incurred to date my understanding from this picture and that is the way I am explaining it you is that 4,500,000 has been incurred, that does not mean that they have been paid, that is the part here, that is cost paid to date is 4,00,000 out of this 4.5 4 have been paid and 0.5 have not been paid. Similarly between the client and the contractor you can see that a difference of 0.7, 7 have been billed and 6.3 have been paid.

So 0.7 has not yet been paid to the contractor, this particular column as a matter of fact is at a given point in time setting 1 that is somewhere here, obviously as we come closer to the completion of the project this table will change, however what will not change is the contract amount, the original estimate and the forecasted costs to complete. Now what this forecasted costs to complete remember that when the contractors submitted a bit.

They had certain drawings, certain specifications and certain rides which they assumed and they thought that they will be able to complete that project in 10,00,000. Now in this 10,00,000 there are 2 components and that something which will come out as we go along in this discussion today. One is the cost and the other let say in simple words let say there is a profit. So the contractor for whatever reason and whatever he decided to do it. He puts a certain amount of mark up of profit and there is a cost we need.

And there is the actual cost which the contractor will incur, so this 10 includes both these components, once you come here or you come here you have a much better idea of what the cost is going to be, so in this examples for example what we are saying is that the cost incurred to date is 4.5 and now before see that you need another 4 to be able to complete this project. So, this 4 is the much better estimate of whatever the work is left over than what you started with.

So that something which you have to keep in mind that as you go long in the project there is certain amount of work which is being done, certain amount of work which is balance, that balance work needs the certain amount of money to complete. And whether you pay today, pay tomorrow, those things are immaterial and that something which we have also talked about in this course somewhere that there is something called accrual.

Accrual means something which has been build for, whether the money has been paid or not paid that is the different matter. It will be been to have been that income would be been to have accrued whether it has physically occurred or not is a secondary matter if we had following the accrual system of accounting, now coming back to this discussion here if we look at our situation we find that the billed amount is 7,00,000, the contractor is for seem a 4,00,000 balance work.

This+ this gives as 11,00,000, the picture will become a little more complicated if we want to say that whether this 4,00,000 is the actual cost of the work which is being 4c or does it include the profit which is being also included in it or not. So not withstanding that the fact of it remains that this 4 will at least get added to this 7 before the work is actually completed. Now contract amount is only 10, so this 10 is less than 7+4 what does it mean, it simply means that either he will have to take a loss of 1,00,000 that is he will get only 10.

And he will have to sell out 1,00,000 from his pocket to be able to complete this project or there would be what is called extra items. There are changes which are happening either they happened here there may happened here whatever is likely to happen. There may be changes here which the contractor will claim as an extra item at some point of time of the other. And that is how we try to understand this business of revenue in a long duration project that whatever we see today need not be what we had 4c in earlier.

And that is where if you go very good planning you have a very good estimate of all things are going to turn out. Then your estimates will be much better than others, now if we continue from here, so having explain this picture in this form.

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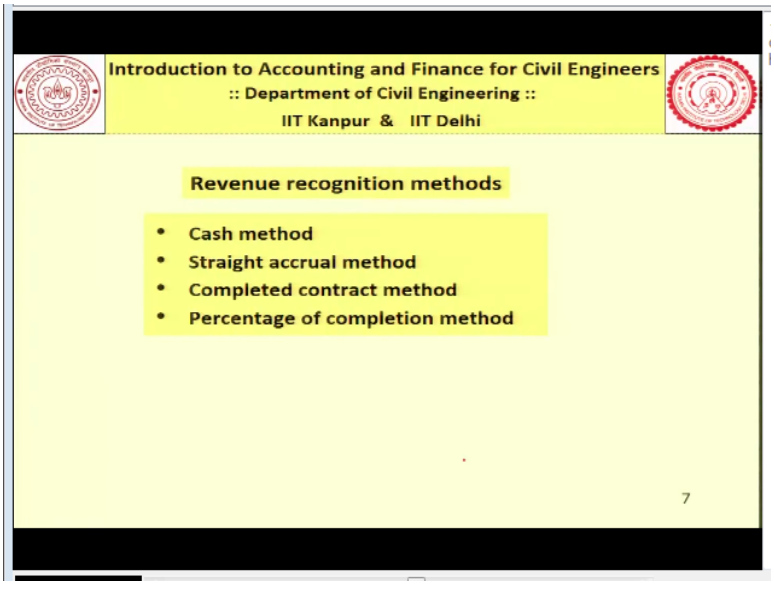

Now let us try to take a look at the actual methods of revenue recognition which are given in text books. What the text books will tell you is does thus method called cash method, straight accrual

method, completed contract method and the percentage of completion method, as far as this discussion is concerned today.

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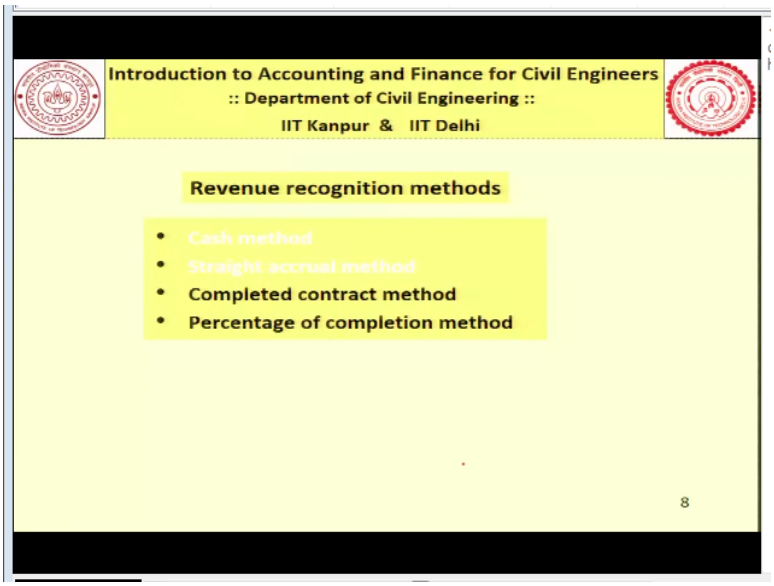

The cash method and the straight accrual method this is not something which will talk about, we will talk about the completed contract method and the percentage of completion method.

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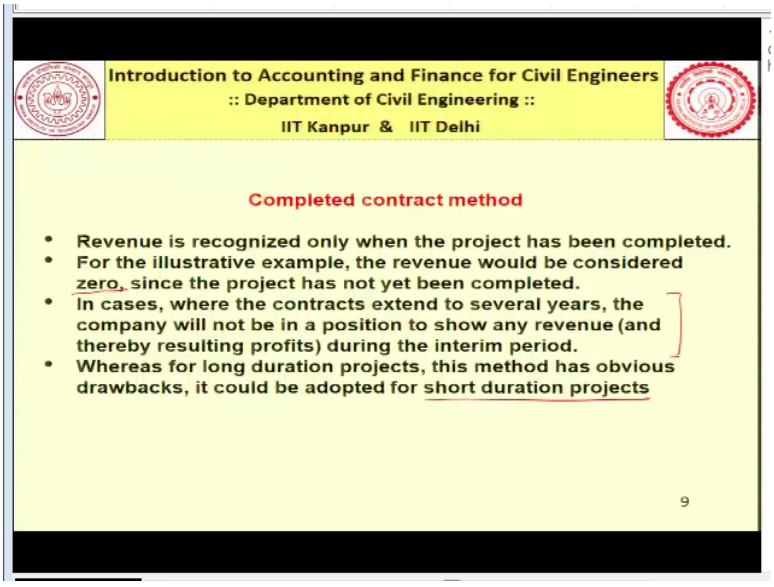

Now as far as the completed contract method is concerned revenue method is concerned. Revenue is recognized only when the project has been completed because of all the uncertainties involve what is agreed upon and what is done is at only after the project has been completed the revenue is counted or recognized, for the illustrative example that we just show the revenue

would be considered to be simply 0 since the project has not been completed, obviously when the project or a contract extends over several years.

The company will not been a position to show any revenue and there by resulting profits during this interim period and that is not something which is to desirable, at the end of it, it is very difficult for a company or for a system to say that well over 3 years whatever is happening as for as that project is concerned will not be reflected in your account books as revenue. It will be not reflected formally whereas for long duration projects therefore this method has obvious drawbacks.

But it could be adopted for short duration projects, for a project let us say which going to be over 6 months, 8 months, 10 months. One can say that yes as far as this project is concerned let us not try to recognize revenue in the intermediate stages. So that is what the completed contract method is all about.

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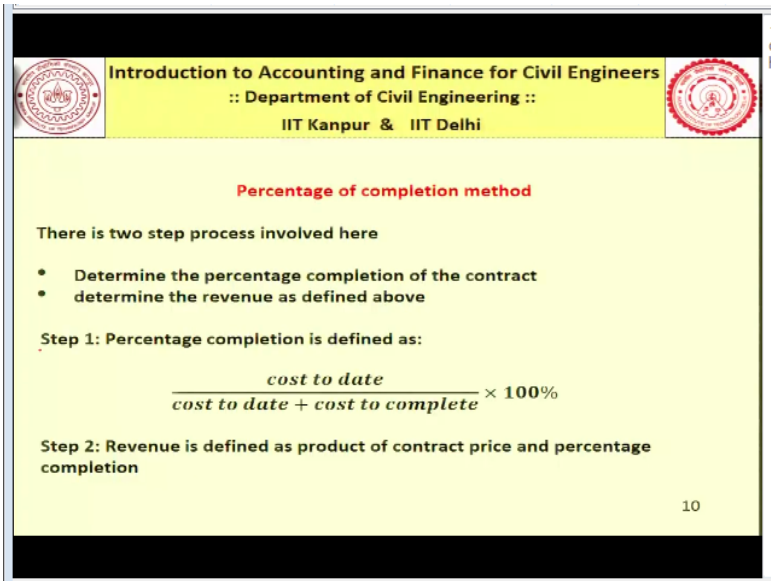

Now coming to the second method of revenue recognition that is the percentage of completion method. Now this is a 2 step process and in the first step we determine the percentage completion of the contract and then determine the revenue as defined above that is the first determine the percentage completion over contract. And then we define revenue using that percentage

completion and a contract value, so what it effectively balls down to is the step one the percentage completion is defined as cost to date/cost to date+cost to complete*100.

And second step is the revenue is defined as the product of the contract price and percentage completion.

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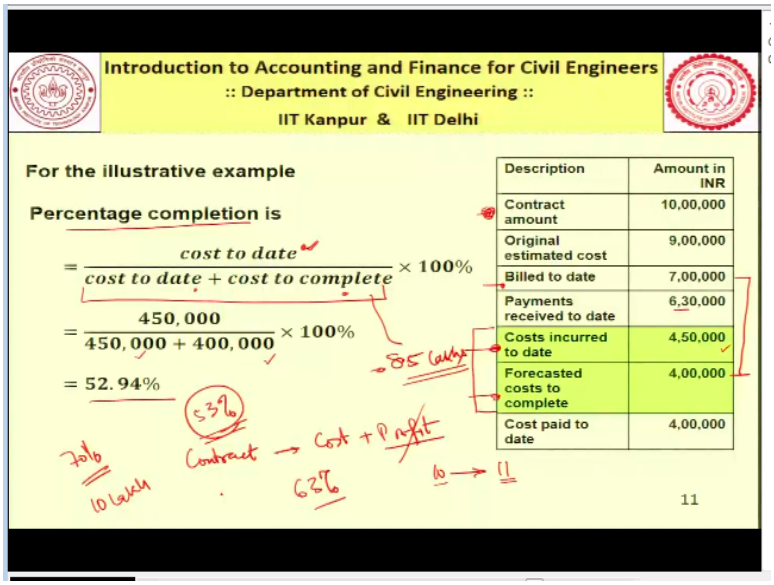

So, now let us look at the table once again and try to implement this definition what it says is that there is something called percentage completion. Now this percentage completion is defined as cost to date/the sum of cost to complete and cost to date. What it says is that there is the cost incurred to date and there is the cost which is forecast of completion. So that is how we say that the cost to date is 4,50,000 and 4,500,000+4,00,000.

Now this discussion here the denominator here becomes 8,50,000 and what we are doing is that with respect to this 8,50,000 we are trying to find out % completion based on the cost which has been incurred to date, that is we are not using the contract amount, and one way of looking at this would be that at the end of it the contract amount I told you is inclusive of the cost and the profit or the mark-up**.**

Now as for as project completion is concerned it stands to reason to discuss or to have a stand point that the profit will not be part of project completion. So there cannot be billing which has

happen which gives contributing to the profits of the contractor and that gets into our system to calculated project completion. So, the project completion for c should only be limited to the costs to date and the cost to complete.

So that is how we look at it and if we do this calculation we will come up to let say 52.94. Now 52.94 let us say 53% project is completed as far as this definitions concerned, whereas if you look at the number with respect to the contract amount. What is the number we already build let us say 7,00,000 that means as far as billing is concerned one can say that 70% of the project is complete. Because we have build 7,00,000 out of 10,00,000 how much have you received.

We have receive 6,30,000, so somebody can argue that well 63% of money has already been received and therefore the project is 63% complete. But know the fact of it remains as we have discussed before that cost which is still remaining to be incurred and the contractor at this point in time has a much (()) (16:18) how much cost is going to be incurred to complete the project this has to get added to this.

And it shows that if we use 10,00,000 as the denominator in terms of the contract value. We will not get the right kind of result. Because it is we are forcing right here that instead of 10,00,000 the project is going to take 11,00,000 to complete. Whether the contractor makes an extra item whether the client face for it or not is immaterial that we will talk about separately if it is required. The project will not be completed unless somehow an expenditure of 11,00,000 is incurred.

Therefore it is important one to understand that the 10,00,000 should not be used in the denominator. So with this I hope you understand this example of calculating percentage completion as for as the project is concerned.

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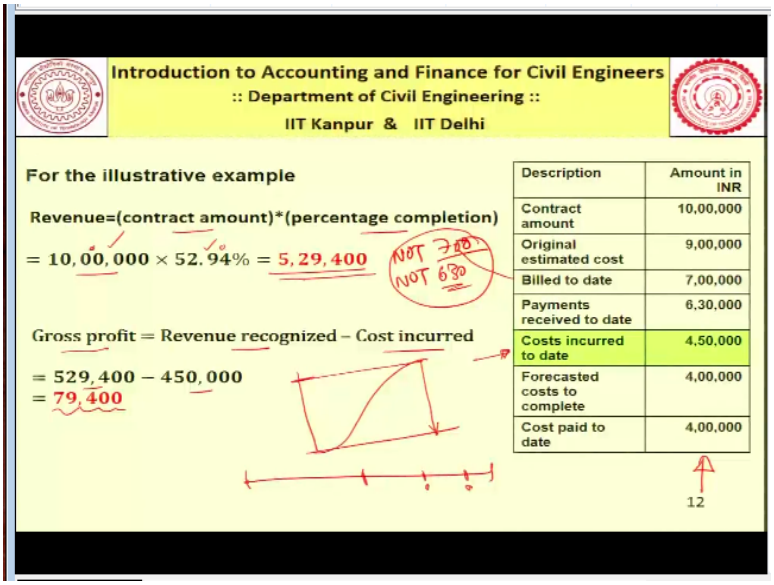

Now once the project percentage is known as for as revenue is concerned. Revenue is the contract amount multiplied by percentage completion, so when we are talking of revenue we are talking of contract amount which is 10,00, 000 and 52.94 of 53% what we got last time in the last slide. And we say that the revenue as for as this is concerned is 5,29,000 and not the 7,00,000 which is coming from here. And not the 6,30,000 which you have actually received.

So the revenue in this illustrative example is not related to what you have actually received. But it is related to the contract amount and the percentage completion. So, that is how we can kind of talk in terms of revenue recognition as for as using the percentage completion method is concerned. Now once you know the revenue of course we can talk in terms of the gross profit at that point in time is which is revenue recognized-cost incurred.

So, in this case it is 5,29,400 what we are getting from here and 4,50,000 which is the cost incurred to date. So this is the kind of profit which you can show at this point in time, so I am leaving it to you to create more columns as far as this column is concerned and as time progresses you try to see that ok if this is where we are today how will these numbers here change, if we move towards the completion of the project.

This also is related to our understanding as far as the x curve is concerned which is the project completion verses time, how much of the project is being completed, what is the asking rate of

what is the rate at which the progress has be made, in order that the project is completed at a particular point in time and what will be the revenue that will a crew at that point in time and so on. And with this we would like to close our discussion for the day.

And before we close I only mention that this discussion of revenue recognition will be taken forward in terms of contract status reports.

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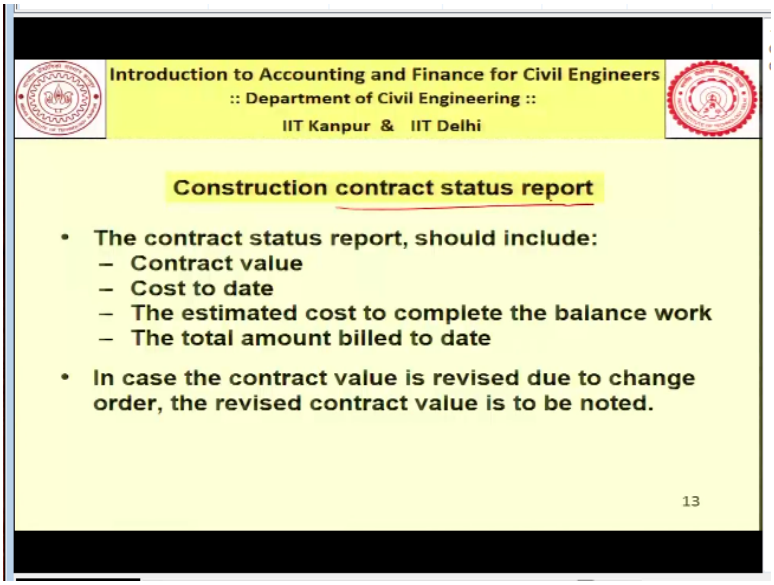

Because as far as the construction company is concerned it could be running several projects which will have several of these tables. This will be the table for let us say project 1, there would be another project which could be let us say project 2, 3 and 4 which will be different stages of completion. So that is what we will discuss in the next class, when we talk about contracts status reports.

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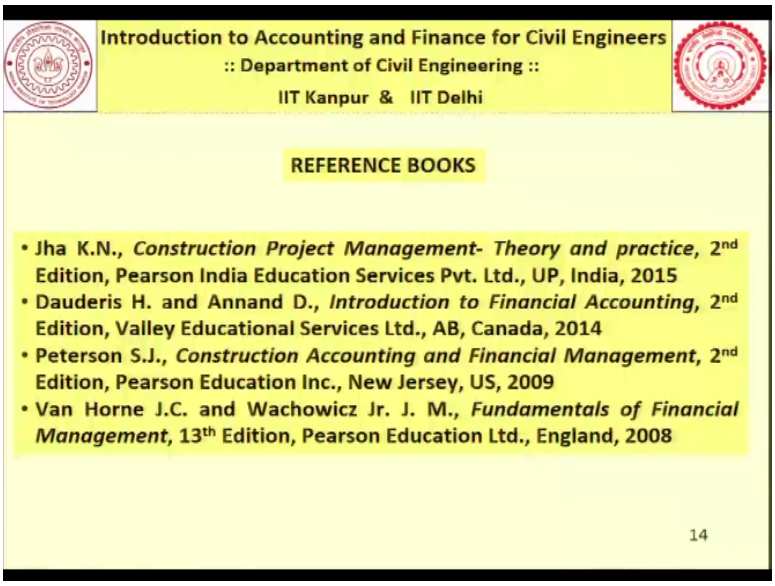

Here is the list of references which you might find interesting this is probably the same books that we give you most of the times. And I will look forward to see you again in the next class thank you.