Managerial Accounting
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Lecture - 23
Job and Process Accounting Including Cost Sheet and Equivalent Production

Dear students in last few sessions, we are discussing about Cost Accounting for Products as well as processes. We have learnt that, there are two major methods. One is process costing, the other is product costing, which amongst the two is more useful for a mass production, do you remember? Amongst process and product or amongst the process costing and job costing, which one is more useful for mass production?

You are right for mass production, the process costing is more useful. So, the features of process costing include large output of identical production. The production is essentially as per the manufacturer specification and not as per the customer specification. It is difficult to identify input to output, because unit is have been made in the large scale. And for calculating the cost per unit, we take the total cost and divide it by number of unit is in a particular period to get cost per unit.

Today, we are going to discuss some more problems on process costing. And we will also see little advanced concept in process costing like, equivalent production and consideration of losses. Before that, let us also discuss about job costing. Now, job costing is exactly opposite to process costing. This is where in smaller lots specialized products are prepared.

So, production is as per the specification of the customer for costing of that output, we have to identify the input material, labor, overheads going into a particular job. So, usually a job cost sheet is prepared, whereas in process costing process accounts are prepared. So, last time, we have seen, today also, we will seen, one more case regarding preparation of job cost sheet.

Before, going into that, please tell me in which industries process costing is useful and which industry job costing is useful? Last time we have discusses a lot. So, I think, you will be able to recollect, just think over? You are right in process costing uses; we can

use it in refineries. We can use it in plastic manufacturing, steel manufacturing, manufacturing of readymade garments.

So, these are where large scale manufacture happens and where is the job costing used? Job costing is typically used in construction, amongst the garment, you can say that readymade garments more useful is process costing. But, tailor made garment is appropriate for job costing. Then, specialized professional services like doctors, lawyers, charted accountants, customized software, all these are examples of job costing.

Let us go now into the cases of process costing. Let us have a glance through whatever we have done. So, we have discussed the use of product costing. Then, the two types, which we have revised today also, all these things we have revised today. I am just showing so that, you get more clarity. Usually, this type of cost sheet is prepared for job costing. We are going to see one case today on job costing.

Then, we have also discussed about treatment of losses. There are two major types of losses. One is a normal loss, another is abnormal loss. So, when as per technical specifications, certain loss is inherent to the process. It is considered normal. When, the actual loss is exceed the normal loss, the treatment in such scenario is called abnormal loss.

Usually, this may happen, because of accident or some irregularity. Then, we had seen, how process cost accounts are prepared. We had discussed this particular case. Now, let us go to excel sheet and try to do some more cases on process costing. Even, before process costing, I have put up one case on job costing. So, that it is more clear to you, how to prepare a cost sheet?

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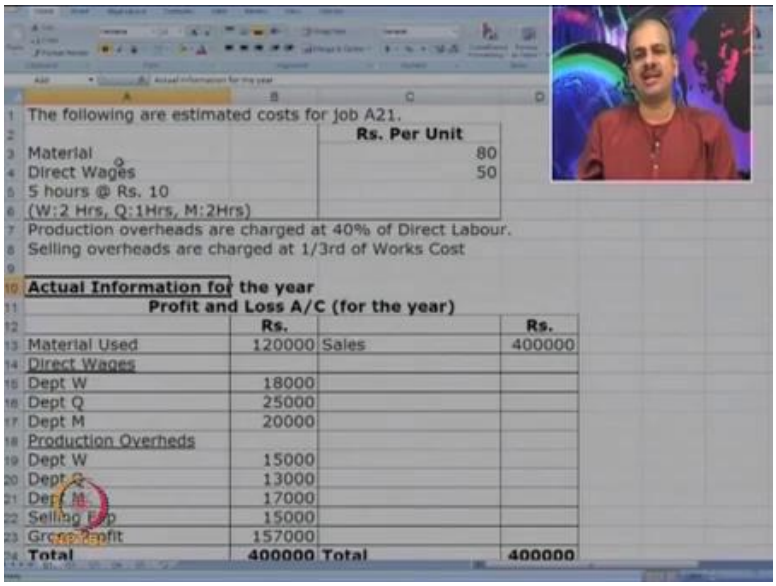

So, here is a data for job A 21, you know that, each job is identified by a specific name, because in job costing, you have to prepare a separate cost sheet for each job. So, following estimates are available, material, direct labor hours as well as time is estimated is given that, there are three departments W, Q and M. So, it takes 2 hours, it is likely to take 2 hours in W 1 hour in Q and 2 hours in M.

Then, the method of charging the overheads is also given. Production overheads are charged 40 percent of direct labor. And selling overheads are charged at 1 3rd of works cost. I think, you remember that, we have discussed about absorption of overheads. It is the process, where the overheads are charged to the products. So, here you can see the method and the rate of adsorption is given. So, production overhead is to be charged at 40 percent and selling overheads are required to be charged at 1 3rd.

So, on the basis of this data, we can make an estimated cost sheet. Further, some actual information for the year is given. Like profit and loss account at the end of the year and actual hours, which were worked in those particular departments. So, you have to calculate the estimated and the actual job cost. So, have a look at data once again, how will you proceed? First, let us start with the calculation of estimated job cost, how to calculate it with this data?

So, you can see that, material labor, you can directly charge and for overheads, using a particular method, we will make an estimate. So, let us see, how the cost sheet will look like?

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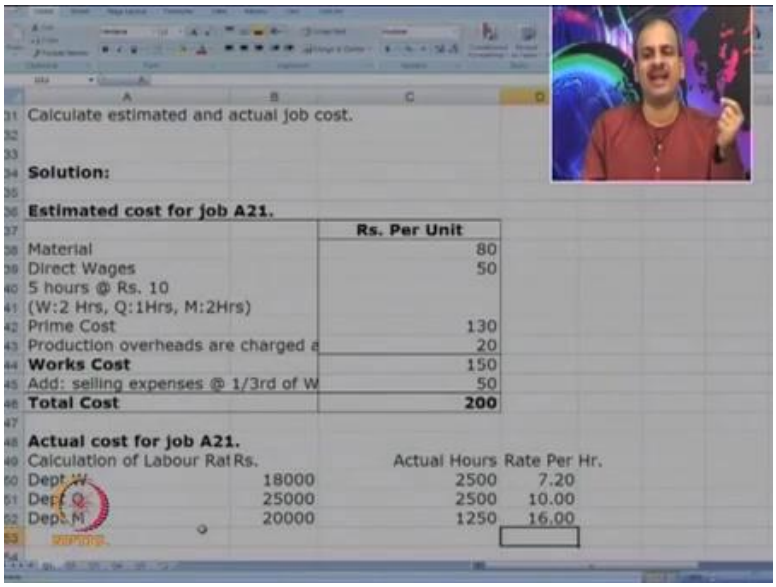

So, this is the estimated cost sheet for job A 21, material cost as was given is 80, direct labor is 50. So, prime cost, which is total of all direct expenses, is 130. To this production overheads are charged, you know that, they are to be charged at 40 percent of direct labor. So, 20 is charged 40 percent of 50. Then, selling overheads are charged at 1 3rd of works cost.

So, prime cost plus production overhead, we get works costs which is 150 and 1 3rd of works cost, that is 50 rupees are charged. So, total cost becomes 200 as per the estimates. We know that the calculations are made using pre-determined overhead rates. So, based on the estimates, the cost is 200. Now, let us see, what is the actual cost? Now, before going for actual cost, we have to calculate the actual adsorption rate for overheads.

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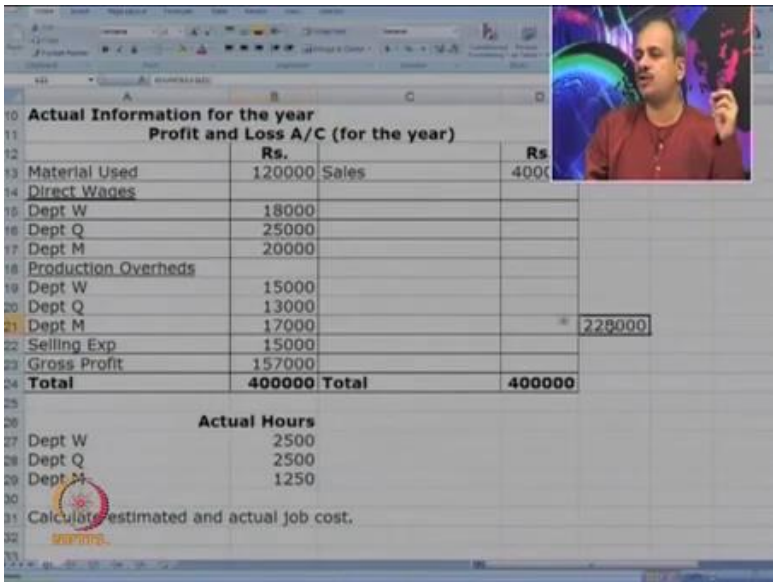

Now, if you see that actual hours worked in departments W, Q, M were given. That is 2500, 2500 and 1250 and the wages of the three departments was also given. That is a direct labor, which is 18, 50 and 20. Now, we know that, the company absorbs the production overheads on the basis of direct labor. That is why; we have divided 18,000 by 2500. So, we get a wage rate of 7.2.

This is not overheads; we are still calculating the wage rate. We know that, this is the actual wage cost and we also know the actual hours. So, we can divide 18,000 by 2500 to get the wage rate, which comes to 7.2 in case of Q, it comes to 10 and in case of M, it comes to 16. So, this is for calculation of actual wage rate. Now, let us go to actual rate for adsorption of overheads.

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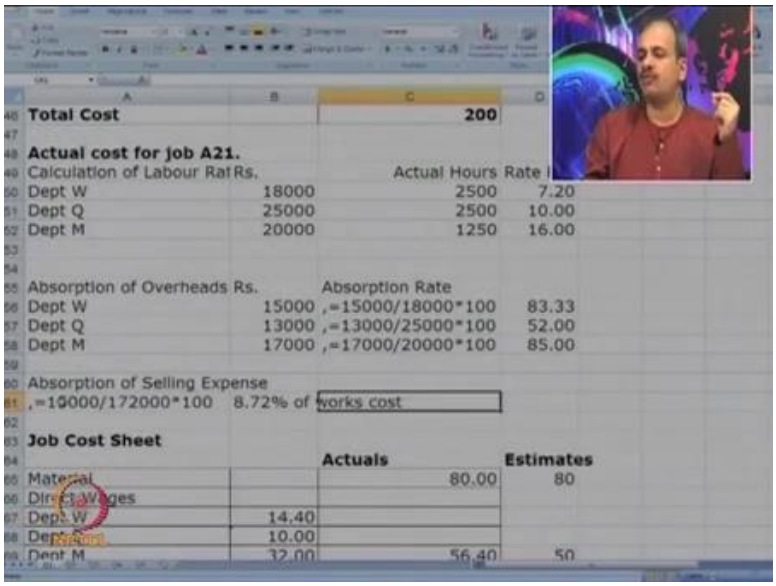

So, in department W, the overheads, which are actually given have been picked up, if you remember in P and L account. Overheads were given as 15, 13 and 17, this is the actual overhead cost. So, these are picked up, the absorption of overheads of the companies based on direct wages. So, we are dividing this 15 by 18,000, which is the direct wage cost for department W.

So, 15 upon 18, we get 83 percent. In case of Q, it is 52 percent and in case of M, it is 85 percent. So, this is the percentage at each the overheads will be absorbed. Same way for absorption of selling expenses, we can see, what rate is used for selling expenses? As per the estimate, the rate was very high, they were using 1 3rd of works cost. Now, here we have tried to make the actual estimate, if you go to P and L account.

You will realize that, the work cost is 1,72,000. So, 15,000 upon 1,72,000 becomes the actual selling expenses ((Refer Time: 10:36)). I think, if 172 is not clear to you. You can look at a P and L account, can you calculate the works cost on the basis of this. We can just take a sum of everything from material up to production overheads. So, depending on the works cost, I will just show the calculation again, you have been given material, direct labor and production overheads. This all together is called as works cost, it comes to 228.

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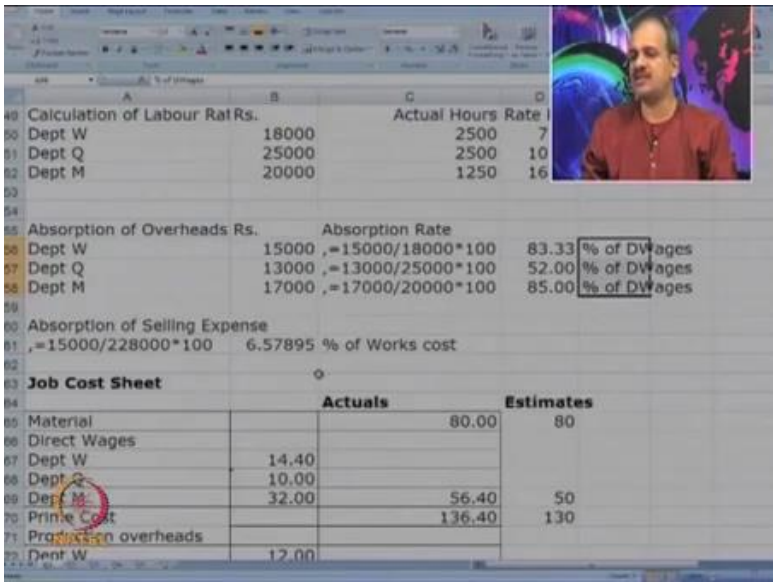

So, I think, I will have to recalculate and actual selling expenses are given as 15,000. So, 15,000 divided by 228, which is correct works a cost is 8.5789 percent of works cost. I hope, it is clear to you now? So, to before going for calculation of actual cost sheet, you have calculated the actual wage rate. Actual rate for adsorption of production overheads, which is based on percentage of direct labor and we have also calculated, absorption of selling overheads as a percentage of works cost. Here also I will just specify for more clarity. This is percentage of direct wages. All these three are the percentages of direct wages.

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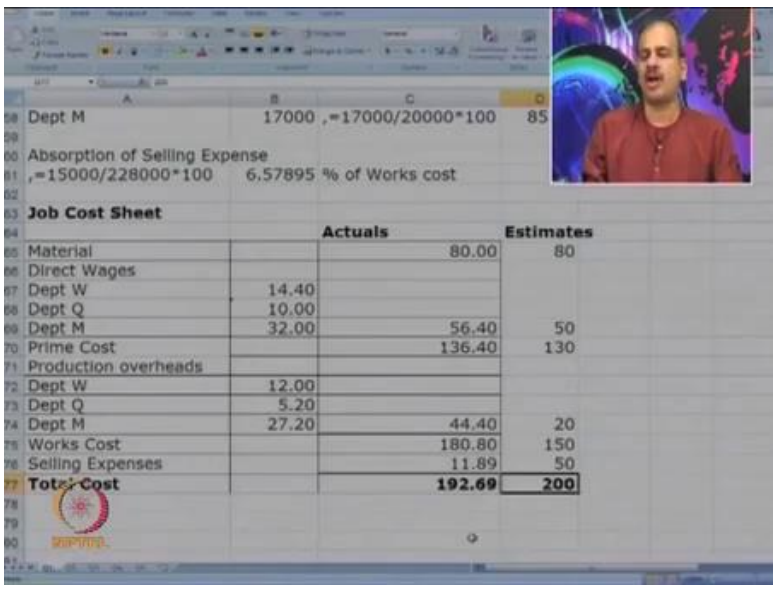

Now, let us go for preparation of actual job cost sheet. So, you can see material cost is 80 rupees, which is anyway given to us. Wage cost is now we have calculated. Earlier, there was estimate of 50 rupees was used. So, which, you can see in the estimates. Now, actual calculation is done. Number of hours are known to us. That is 21 and 2. Now, this two multiplied by 7.2, which is the actual wage rate, is calculated.

Same way, here it is 1 into 10 and two into 16. So, we get total of 56.50. So, instead of the estimate of 50, the actual wages have gone up to 56.40. So, prime cost comes to 136.40. Now, let us look at production overheads. Production overheads, now these are the new rates, which you have calculated. So, for each department, we will look at the wage cost and multiply, it by the respective rate.

So, 14.4 into 83.33 percent, we get 12. For department Q, we get 5.2, which is at 50 2 percent. And for department M, we get 85 of 32, which is 27.20. So, the total is 44.40. This is the total production overheads. So, now prime cost plus production overhead, the works cost come to 180.80. You can see that, the estimated work cost was only 150. Actual is now calculated at 180.80, selling overheads are at I will just recalculate, because there was a slight error. It is 180 into 6.57 percent.

So, it is just 6 percent of works cost as per the calculations, which we have done. So, it comes to only 11.89. So, total cost is 192.69 as against estimate of 200, are you getting me. So, I hope, you have now more clarity on how the cost accounting is done in case of jobs; is it fine, if you have clearly understood it. Now, let us go to process costing and try to contrast the two. So, in process costing, we were discussing about the normal and abnormal loss. And now, we are going to actual preparation of process accounts. Let us go to the case, once again in the excel sheet. So, now, have a look at case number 2.

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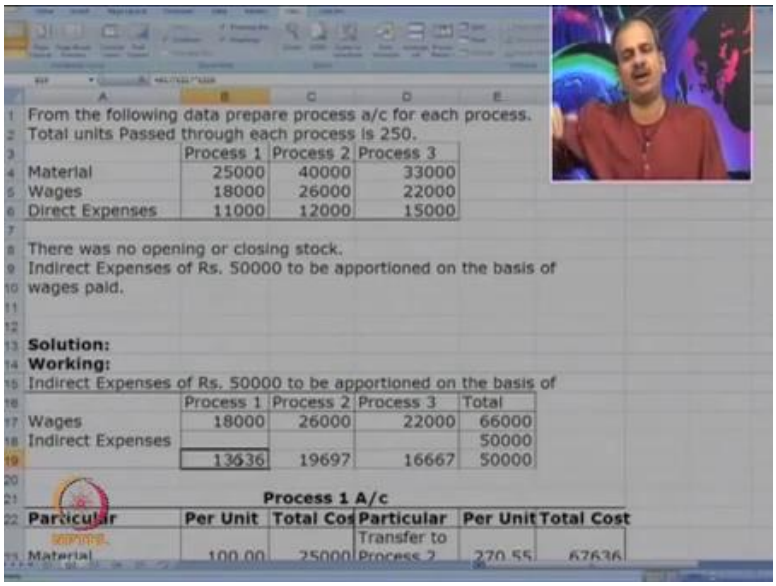

So, in case number 2; you can see, please read the case carefully. So, from the following data, we required to prepare process accounts. The total unit is produced are 250 and same number of units are passed through all the processes. And the material wages as well as direct expenses are given for process number 1, 2 and 3. So, essentially, the material is put in at the beginning of process 1, it passes through process 2, it passes through process 3 and it comes out.

There is no opening or closing stock, indirect expenses or overheads are given as 50,000 and they are to be apportioned on the basis of wages paid. So, how will you proceed now for preparation of process accounts? Even, before preparation of process accounts, first we have to calculate, how much of the overheads to be charged to processes. You know that the total overheads are 50,000 and they are apportioned on the bases of wages, which amount for process 1, 2, 3 is given.

So, you can see the working, which I have tried to do. The indirect expenses are 50,000. The wages are given as 1826 and 22. So, total comes to 66 and indirect expenses are given as 50,000. So, try to distribute 50,000 in the proportion of 66. So, here is a calculation. So, you will take 18 upon 66 into 50. So, you get 13,656 for process 1, 19,697 for process 2 and 16,667 for process 3. I hope, it is clear to you. So, we have first calculate the overheads chargeable.

Now, let us go to process accounts. So, if you look at process 1 now, what will come in process account? So, we have to charge material, wages, direct expenses and indirect expenses. So, these three amounts plus the indirect expenses calculated for process 1 will be charged to process 1. And on the output side, we know that, same 250 units, which were entered at process 1 and passed on to process 2. But, they are not same at the phase, because, before entering phase 1, the material was just a raw material.

Now, it has gone through process 1. It has slightly gone closer to the finished goods. At the end of process 2, it will go to process 3 and at the end of process 3, it will become finished goods.

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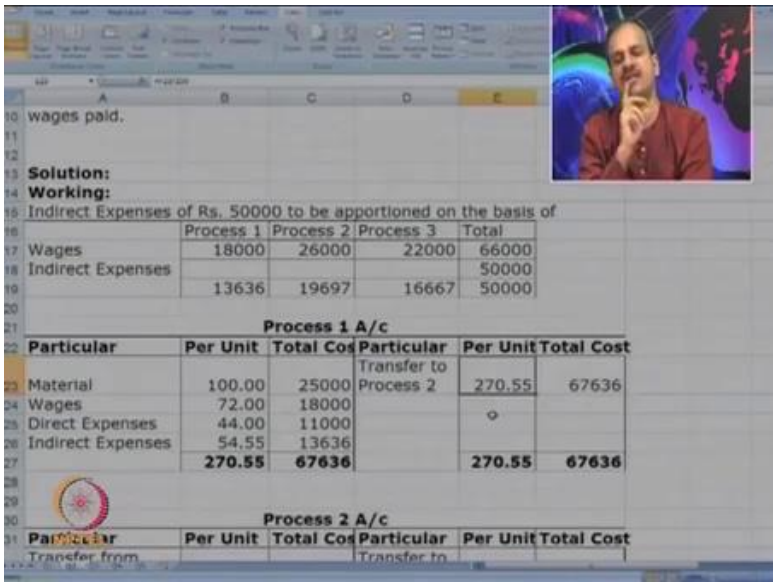

Now, let us make process 1 account have a look at it, I hope it is very simple, you will easily understand. So, the material cost wage cost and expenses are charged 25, 18, 11. We are already calculated indirect expenses 13,636. Now, to calculate per unit rate, each of these items are divided by 250. You know that, number of units entering the process and coming out is 250.

So, we divide the total cost by 250. So, that, we know, each of the element per unit basis. So, this is material wage in direct cost indirect cost. Then, same way, you can take the total. So, we know the total of total cost, which is 676, I will just make it bold. Now, on the credit side, we are going to transfer this entire cost to process 2. So, transfer to process 2 and we will get per unit as 270, so 67,636 upon 250. So, I get 270.55.

So, here, I think, it will be very clear to you, how a particular process account can be prepared. Now, we have discussed, how process 1 account can be prepared. Now, think of preparing process 2. So, in process 2, what will you show, if you go up, we had been given direct material wage and direct expenses, they will be repeated. Apart from that, this cost, which is transferred from process 1, will also be there to begin with.

So, we will taken material from process 1 to that, we will add material, labor and expenses. That will be the total cost plus indirect way expenses will be the total cost of process 2.

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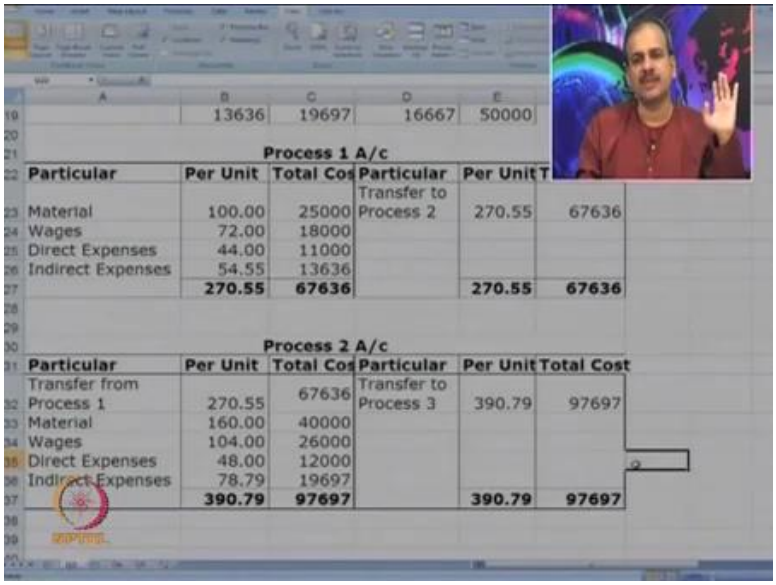

Now, look at the process 2 account. So, I hope, it clear to you, now you have got transfer from process 1. Then, material wages and direct expenses plus indirect expenses, same like in the earlier, we have divided it by 250. So, to get per unit cost of each of the elements in process 2. On credit side, the amount will be transferred to process 3. There is no normal loss, there is no abnormal loss.

So, entire amount 97,697, which is the total of that at process level, will be transferred to process 3. I hope it is clear. Now, process 3, you can make very easily. We will go back, look at the process 3 and try to make process 3 accounts. So, have you taught off, how to make process 3 account very, very similar to process 2.

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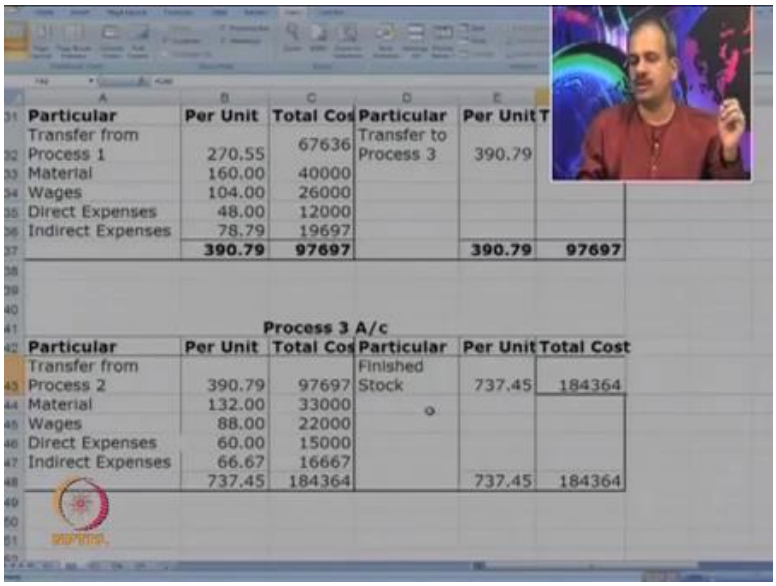

Particular	Per Unit	Total Cos	Particular	Per Unit	T
Transfer from Process 1	270.55	67636	Transfer to Process 3	390.79	
Material	160.00	40000			
Wages	104.00	26000			
Direct Expenses	48.00	12000			
Indirect Expenses	78.79	19697			
	390.79	97697		390.79	97697

Process 3 A/c

Particular	Per Unit	Total Cos	Particular	Per Unit	Total Cost
Transfer from Process 2	390.79	97697	Finished Stock	737.45	184364
Material	132.00	33000			
Wages	88.00	22000			
Direct Expenses	60.00	15000			
Indirect Expenses	66.67	16667			
	737.45	184364		737.45	184364

So, we start with the charge in the process 3 account. So, transfer from process 297697 is for charging process 3. Then, we add material, labor, direct expenses and indirect expenses. And the entire amount is now ready, because we had only three processes process 1, 2 and 3. So, the output is now transferred to finished stock account. I hope, it is very clear now, how to make process accounts, is it understood.

Now, let us go to one more case, wherein, we will try to understand normal and abnormal loss. Because, in the current problem, we have seen, how to make process accounts. But, we have not seen, the treatment of normal and abnormal loss. Before that, do you remember, what is normal abnormal loss? So, I think, it clear, you have understood it, normal loss is a loss, which is normal to the process. It is inherent to the operations of the process. That is why, it is charged to the customer, whereas, abnormal loss is caused by some abnormal reason. It is required to be borne by the company.

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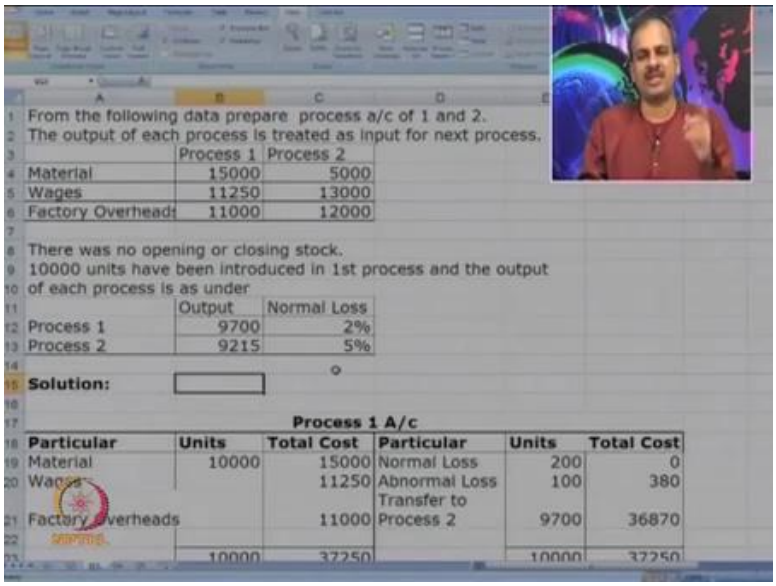

Please read the case, I think, then, it will be more clear to you. So, there are only two process involved, process 1 and 2. Material wages and factory overheads all are given. This time, there is no need to calculate the factory overheads. There is no opening closing stocks, 10,000 units are introduced in process 1. Now, only problem is input and output is not same.

In question number 2, our input and output was 250, if you remember this particular question. In this case, the output is lesser than the input. So, we put in 10,000 units, but we got output of 9700 only. From 9700 in process 1, we got output of only 9215 in process 2. This is happening, because of normal and abnormal losses. Now, let us see, how they are dealt with.

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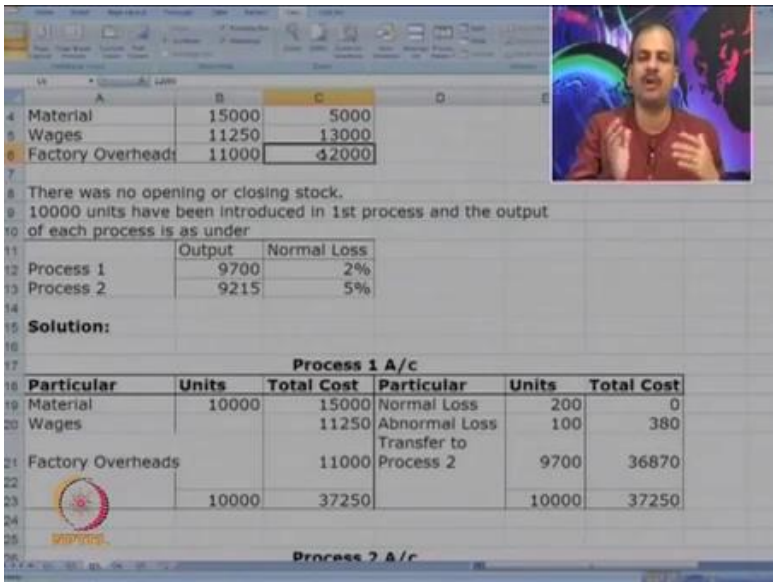

So, when you make process account for process 1, as you can see here, we have charged the material cost and taken number of units as 10,000. So, we have added one more column; that is number of units column, wages are 11,250, factory overheads are 11,000, no problem. But, on credit side, the transfer to process 2 is not same as that input. It is only 9700, which is given to us.

Then, we also have to calculate the normal cost, which is given as 2 percent, so 2 percent of the input; that is 2 percent of 10,000. So, I get normal loss at 200. So, you will observe that, there is some more abnormal loss. Because, 10,000 is put in 200 normal loss, so I should have got an output of 9800. But, actual output is 9700. So, 100 more units are lost and that is treated as abnormal loss.

Now, still, we are not very sure, how to calculate this cost. So, how would have they been calculated, can you guess. Now, you know that the total is 37,250, which is you can take that total of all the cost incurred. This cost is for a normal output of 9800 units. Because, normal loss of 200, do not have any cost, no cost can be charged to it, it is just a normal loss.

So, 10,000 minus 200 my output should have been 9800 for which I will charge a cost of 37,250. So, using this, try to calculate cost per unit and then, that can be used for calculation of abnormal losses and the transfer.

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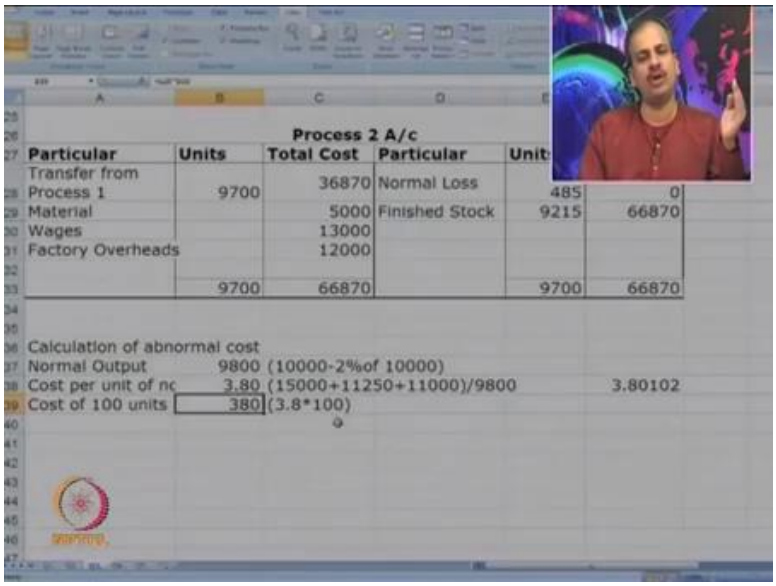

I will show you, how it can be done. So, here you can see that the normal output is 9800, which 10,000 minus 2 percent. You also know that the total cost, which is these three items, 37,250 and it is to be charged on 9800, you can crosscheck, if you want. So, it is 37,250 divided by 9800. So, you get 3.8012, which is what you see here. So, this is the cost to be charged to 1 unit.

Now, we know that 100 units is a abnormal loss. So, 100 into 3.83, 80 rupees will be charged as an abnormal loss. And the output, which is 9700 units; that will be charged at 9700 into 3.8. You can see here. So, 100 units, we have taken the cost to be 3100 and the balance is charged to 9700 at 3.8. So, it is 36870.

Now, let us try to make process 2 account. So, I think by now, you can make it on your own, just think off, how will you make process 2 account. So, in process 2, first there will be transfer from process 1. Then, you charge for material, wages and factory overheads. And on the credit side, look for the losses, whether there is a normal loss, abnormal loss or abnormal gain and so on.

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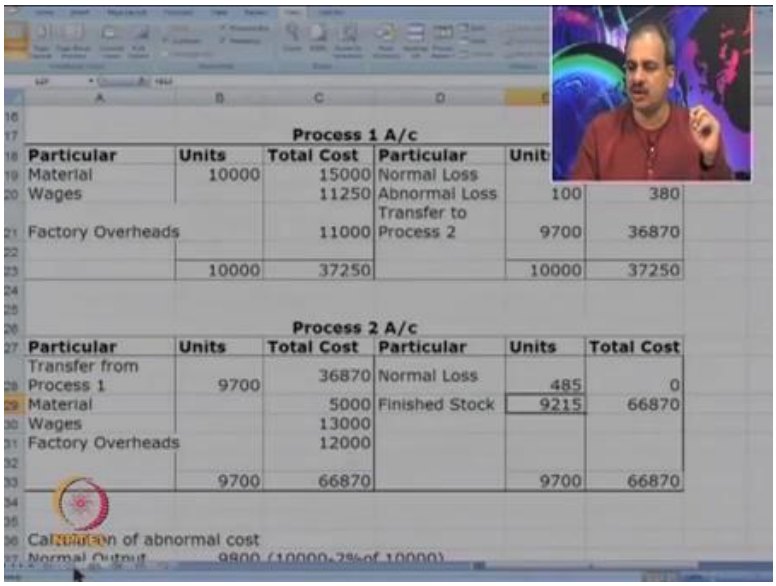

Process 1 A/c

Particular	Units	Total Cost	Particular	Unit	
Material	10000	15000	Normal Loss		
Wages		11250	Abnormal Loss	100	380
Factory Overheads		11000	Transfer to Process 2	9700	36870
	10000	37250		10000	37250

Process 2 A/c

Particular	Units	Total Cost	Particular	Units	Total Cost
Transfer from Process 1	9700	36870	Normal Loss	485	0
Material		5000	Finished Stock	9215	66870
Wages		13000			
Factory Overheads		12000			
	9700	66870		9700	66870

Calculation of abnormal cost

Normal Output 9800 (10000-2%of 10000)

So, have a look at process 2 account. So, you will observe that, this 36,870 charged then we charge 5000, 13,000 and 12,000. So, total cost, you get is, 66,870 for an input of 9700. Now, go the credit side, we had been given that 5 percent is the normal loss. So, 5 percent of 970, so which comes 485 and 9700 minus 485, we get finished stock output of 9215.

You can see the actual output is also 9215. So, there is neither any abnormal loss nor any abnormal gain. So, calculation becomes very simple entire 66,870 charged to stock of finished goods. So, now, there is no need to calculate the cost of abnormal loss, because the output exactly matches the normal output. Now, let us look at one more case. So, now, you would seen in question number 2, we understood, how to make process account. In question number 3, we have seen process account with normal and abnormal losses.

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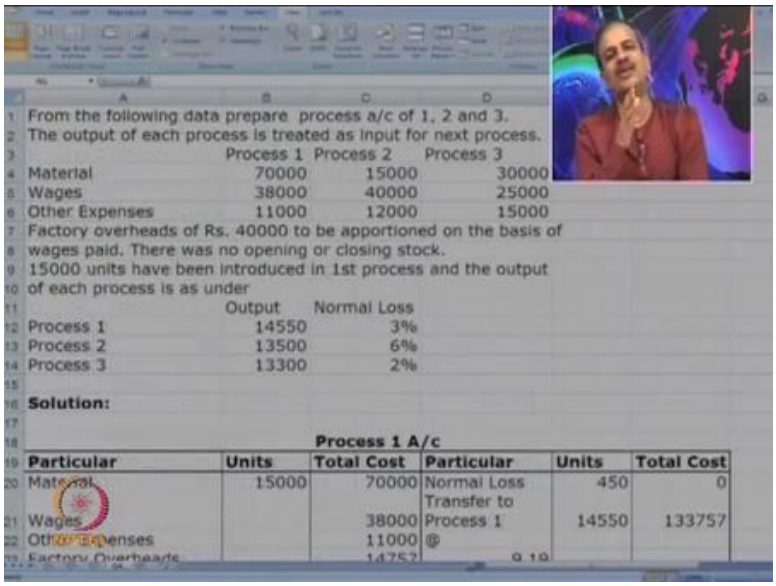

In question number 4, we will once again see the same thing, but with little more difficulty. I hope, then the concept will be much more clear to you. So, please read this case. If you remember in the last session, we had discussed, we had seen this case on a PPT. But, I think it will be better understood today. Now, we will actually try to solve it on a excel sheet.

So, we have to make process accounts for process 1, 2, 3. Now, material labor and expenses are given to you. Factory overheads, which are 40,000 are charged on the basis of direct wages. Again, there is no opening and closing stock, 15,000 units have been introduced at the beginning of process 1. Output is given and normal losses are given at 3 percent, 6 percent and 2 percent.

Now, start preparing process 1 account, partly it is visible on the screen. So, you can easily make it. So, how you can make process 1 account, as you can see, first start charging the direct expenses, which are given. That is material, labor and other expenses. Then, factory overheads are given at 40,000, how will you deal with them, it is given that the factory overheads are charged on the bases of wages paid.

We have wages paid of 38, 40 and 25. So, in the ration of 38 is to 40 to 25, we have to charge the factory overheads of 40,000. So, how much will it come for process 1, try to make the calculation it is in the ratio of 38, 40 to 25. So, I will make a rough calculation here for more clarity, I think, most of you would have already understood it.

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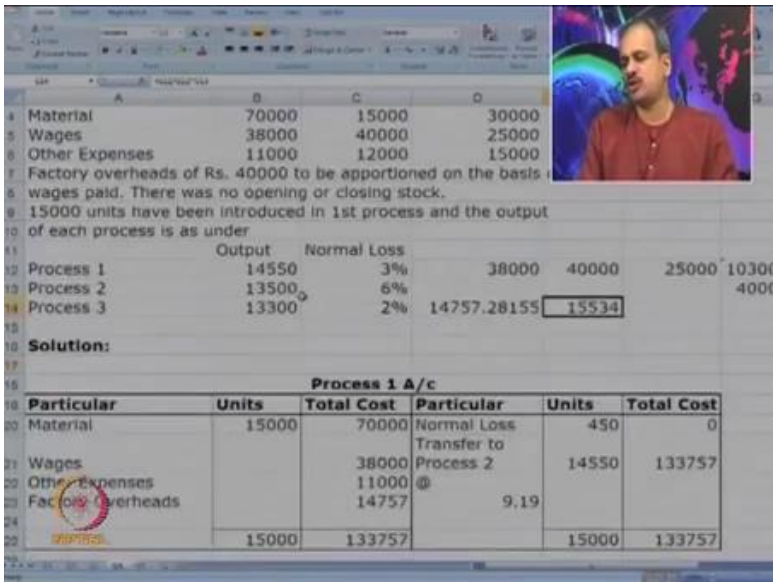

So, we will try to take a sum. So, you know that 103000 is the total wages and we are going to charge 40,000 as the factory overheads in this proportion. So, 38 upon 103 into 40. So, you get 14,757. I am just showing it again; so that, you can yourself calculate it. The calculation are already done in the solution, wherein the factory overheads are taken at 14,457, you can see the formula, which is used.

Now, look at the credit side, we have calculated normal loss at 3 percent. So, 15,000 into 3 percent, so 450 is the normal loss and the 15,000 minus 450. If you do 14550 is a normal output. Coincidently, the actual output also is the same. So, there is no issue of normal abnormal loss at least in process 1. So, in process 1, entire cost of manufacture, which is 133757 will be charged to the next process.

So, here 133757, I will just make a change here. It is transferred to process 2, not to process 1. So, transfer to process 2 is 133757 for 14550 units. So, rate is calculate here for more clarity. So, get a rate at 9.19, which is 133757 upon 14550, I get at the rate of 9.90, this is process 1 account.

Now, think of making process 2 accounts. Now, I am not going to show, try to do it on your own. You can see that the data of process 2 is given; you also have the solution for process 1. So, you can easily think of making process 2 accounts. Let us try to make process 2 account, try it yourself; I will wait for a moment. I think, you are on the right

direction. So, in process 2 account, first you will charge the amount, which is transferred from process 1, which is 133757 for 14550 units.

Then, you will charge material wages and expenses which are 15, 40 and 12 for process 2. Next, what will you charge, you will also charge the factory overheads in the proportion of direct labor. So, let us calculate how they will come to. So, 103 in the ratio of 40. So, you will get 15,534, I hope, you are also able to calculate. So, you are going to charge 15, 40,12 plus 15,534.

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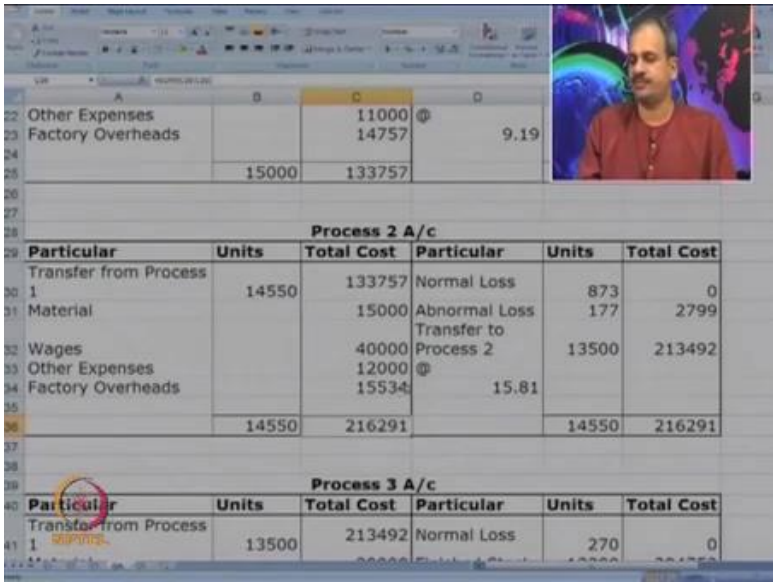

If you have done it, let us also see, the correct solution, check your answer with the solution given. So, for transfer from process 1, it to a charge 133757, material 15, wages 40, other expenses 12 and factory overhead 15. So, if we take a sum 216, 251 is the total cost incurred at process 2 level.

Now, on credit side, look at the normal loss percent, which is 6 percent. Now, this 6 percent is not on 15,000; 6 percent of the input of this process. So, 14550 on that 6 percent is charged, so it comes to 873. Now, what is the actual output, it is given that the actual output is only 13500, which has been copied. So, 14550 minus 873 minus 13500, you will get an abnormal loss of 177.

So, what it means is, actual loss is more than normal. So, normal loss of 873 and plus there is some extra loss, which is abnormal loss of 177. Now, try to calculate the amount

of abnormal loss and the transfer. How to do it, take the total cost and divide it by the normal output. So, that you get the rate per unit.

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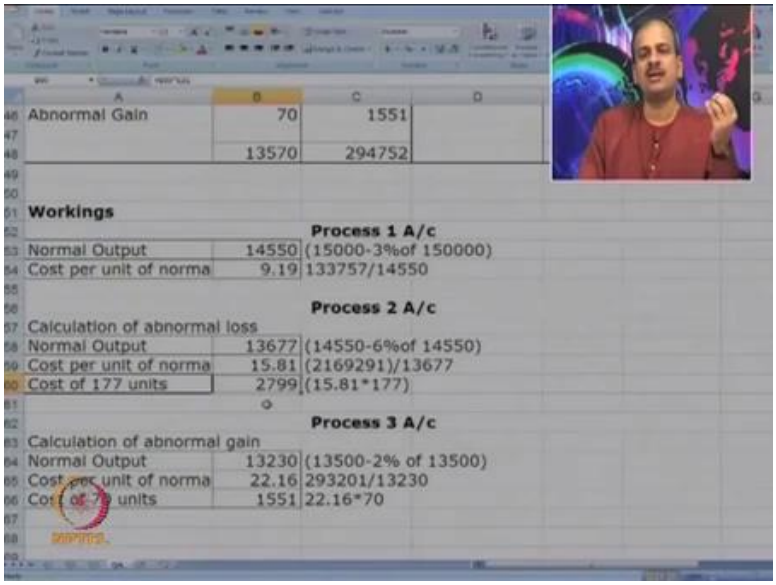

I will show you the working done below. So, we are in process 2. The normal output is 14550 minus 6 percent. That is 13677 and the actual cost, you are aware from process 2, which is 216 to 91. So, 216 to 91 divide by 13677. So, you get 15.81 as a rate per unit for the output. This is at a normal cost.

Now, we know that the abnormal loss is 177 units. So, 177 into 15.81, you will get 2799, which is the cost of abnormal loss. Now, let us go to process account. So, on credit side, normal loss 673, cost is 0, abnormal loss 177, the cost is 2799. It is calculated at the rate of 15.81, which is a cost per unit. Now, the transfer to process, it is not 2, it is actually process 3. So, transfer to process 3 comes to 13500 units at a cost of 213492, which is again at the rate of 15.81. So, we have dealt with a case in process 1, where there is no abnormal loss. Case process 2, there is an abnormal loss. Now, let us go to process 3. So, I am going back to problem, now look at the data and try to prepare process 3.

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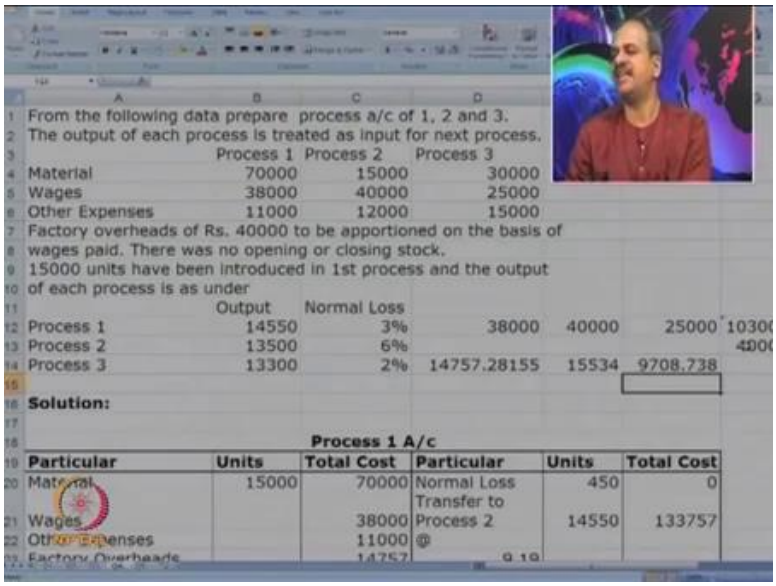

So, in process 3, you can see, 30, 25, 15 is the cost plus the proportionate share of factory overheads plus the charge from process 2 will be the total cost. And normal loss is 2 percent. So, try to calculate the abnormal loss or abnormal gain. Let us first look at the overhead cost, so 25 upon 103 into 40. So, 9708 is the chargeable overheads. Now, let us go to process 3 accounts.

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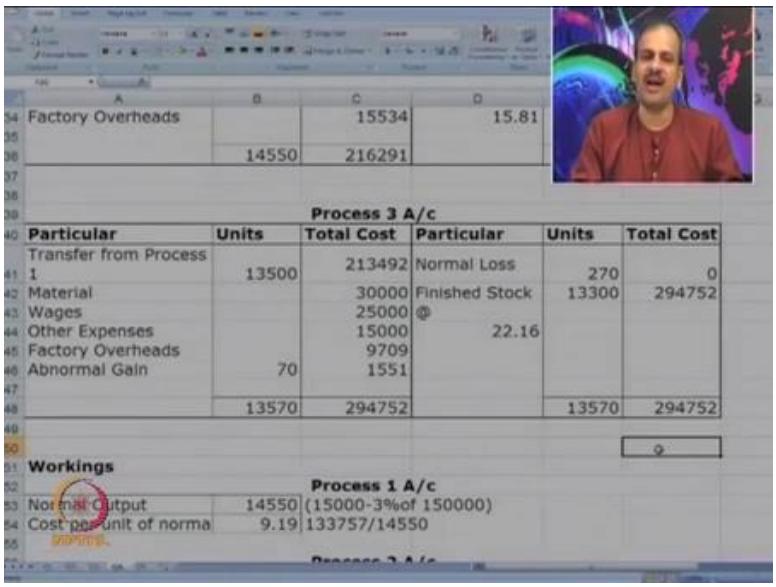

So, we have charged from process 2, this 213492, then material, labor, other expenses overheads. Now, we have to calculate the normal loss, which you know is 2 percent of

input. So, input here is 13,500, so 2 percent of 13500, so I get 270. Now, you will observe that, 13500 minus 270, this is a normal output. But, actual output is more than this, actual output is 13,300. So, the difference should be treated as the abnormal gain, which you can see here.

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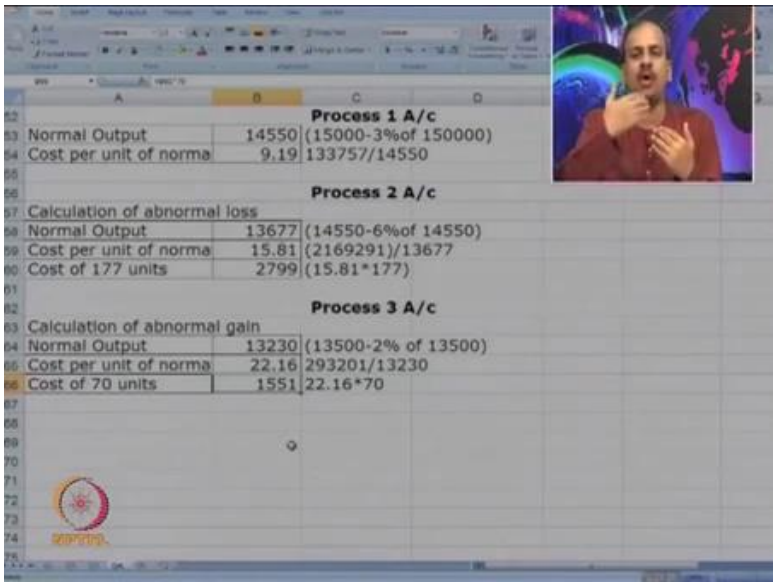

The amounts, we do not know, we have to calculate the rate. You can look at the working. So, 13500 minus 2 percent, my normal output was 13230. But, actual output is 13300. So, there is a loss gain of 70. So, the cost of normal output, first we calculate 293201 divided by 130, 13230. So, 22.16 is the rate. The cost of 70 units comes to 1551. So, this is the gain now. So, it is a cost, but it is not actually cost. It is a gain, because we have made more production than what was normal.

Now, look at the process account. So, in the process account now, apart from all these cost, we will also show abnormal cost on debit side. It will go to credit or profit and loss account, because this is a profit. So, right now, we will show on debit side, 70 units 15, 1551. On credit side, normal loss of 270 and finished goods of 13300 at the rate of 22.16. So, 13570 units at 294752.

So, now in question number 3, we had just seen two processes and you were introduced to the concept of abnormal loss. In question number 4, you have seen three processes with normal loss, one with abnormal loss and one with abnormal gain. I hope all the

concepts are very clear to you now. Now, let us try to understand a next concept, which revolves around equivalent production.

Now, what is equivalent production and why do you need to think about it. Now, what happens is, in all the cases, which we have discussed so far, you will realize that, there is no opening or closing stock. What will happen, if there are opening and closing stocks in the processes, how will you do the cost account, can you think off, what will happen. So, if there is in process material, which is neither fully complete nor fully incomplete. How will you deal with that material or how will you deal with that work in progress as it is typically called. So, let us look at our PPT, we have discussed with all these cost sheet, etcetera.

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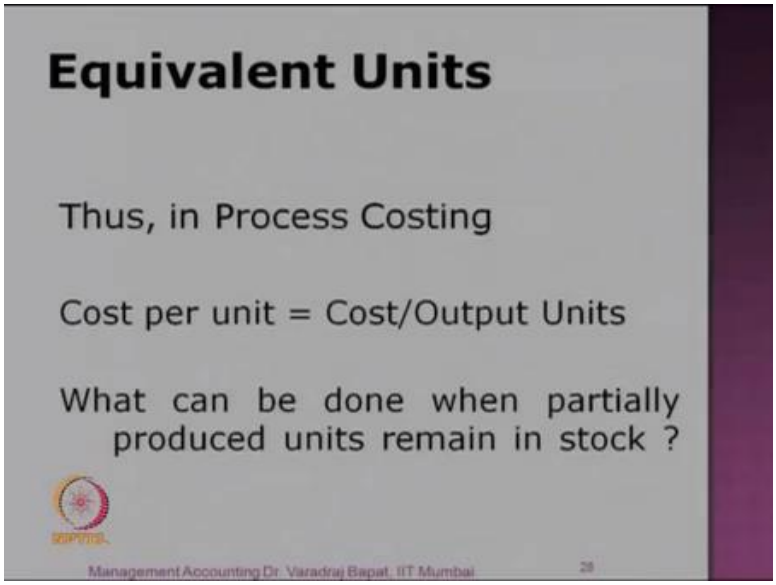

You have also seen now, preparation of process cost account and we are here, a concept known as equivalent production. So, now you know that in process costing, the cost per unit is essentially calculated as the cost divided by output units, not like job costing, where we know cost of the job. Here, we do not know anything about each unit; we calculate the total cost in a process account. We divide it by number of units. So, we get cost per unit.

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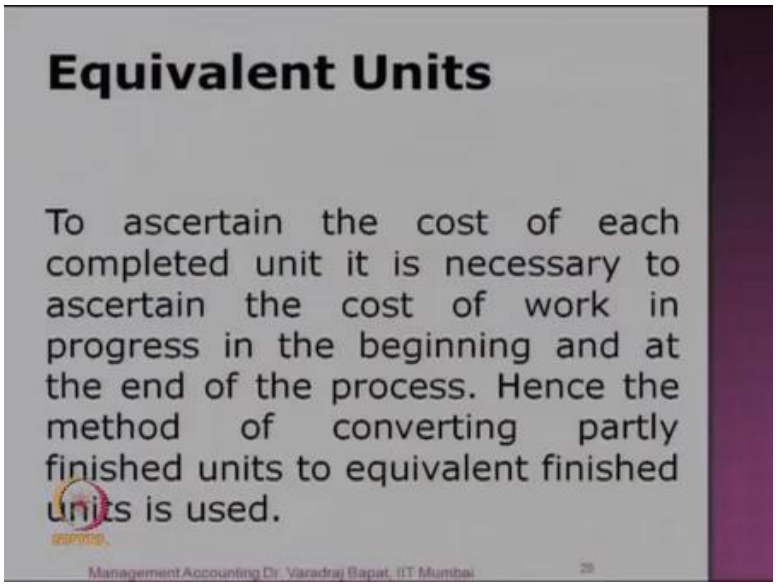

Now, the issue is, if you are partially finished goods, what will you do it? So, what happens is, if there is partly incomplete unit, then we have to convert them into fully converted units, because I cannot divide it a partial unit. So, let us say, I have got 100 units, which are 50 percent complete. I will assume that, they are equivalent to 50 full units. So, if my output is 1000 and there is partially produced output of 100 units, I will take 1000 plus 50 percent of 100; that is 50.

So, my output will be taken as 1050 and then, I will calculate the cost per unit. Now, let us see, how actually it is done. So, to ascertain the cost of each of the completed unit, it is necessary to ascertain the cost of work in progress in the beginning and in the end. Hence, there is a need to convert partly finished goods into equivalent output.

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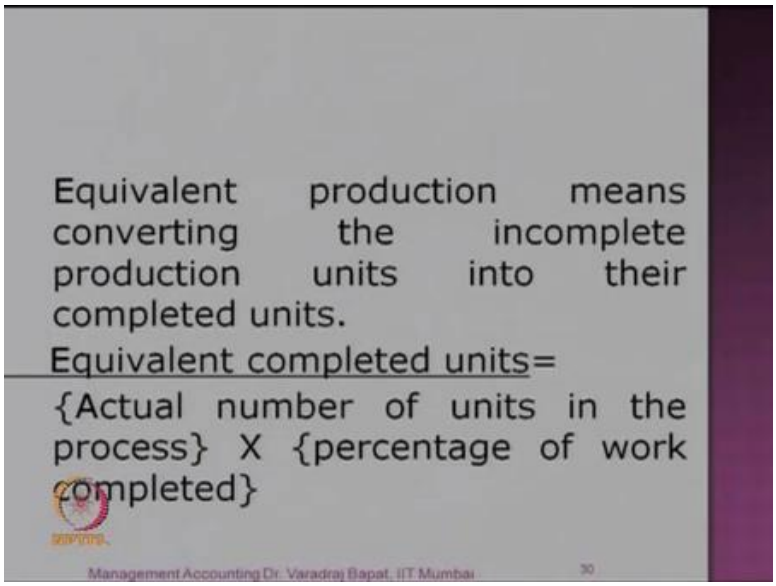

Now, how will you calculate? So, equivalent production means, converting the incomplete production units into their completed units. So, take the actual number of units in the process and multiply by percentage completion, units in the process means those incomplete units or work in progress. So, for those working progress actual units we will estimate some percentage completion. We will multiply by that percentage. So, we get that approximately, how many completed units have been produced. That is nothing but an equivalent production.

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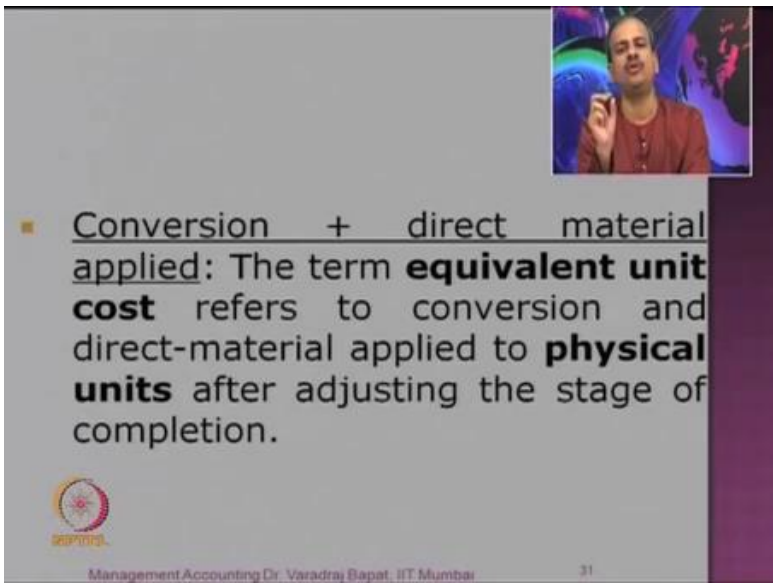

So, for direct and conversion plus the direct material applied, the term equivalent cost refers to conversion of direct material applied to physical units.

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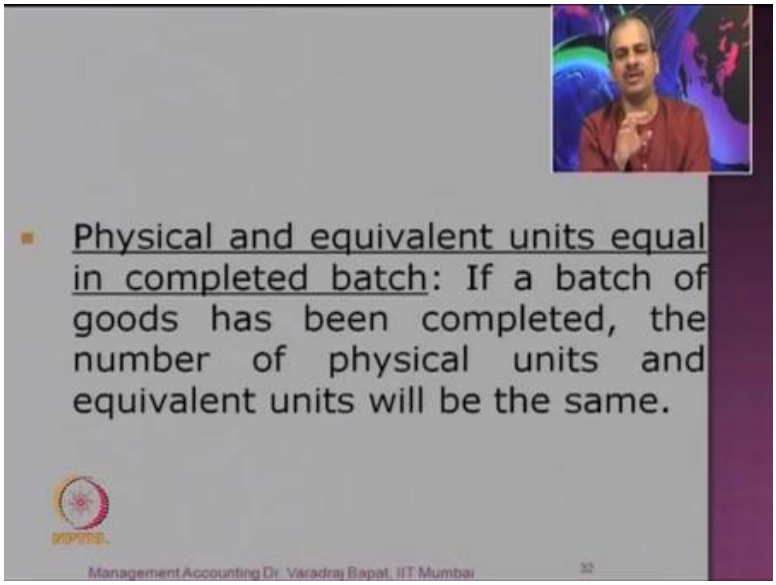

Now, physical and equivalent units completed in each batch. If a batch of goods has been completed, the number of physical units and equivalent units will be same. Because, once the batch is ready, there is no problem of incomplete unit.

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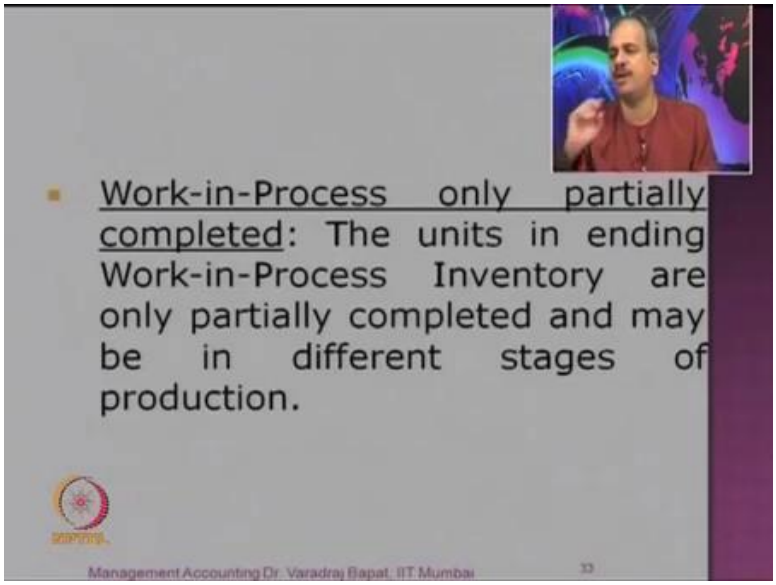

Now, work in progress in case of partly finished units, what happens is, the unit in the closing working progress inventory are itself could be at a different stage of completion.

For example, material might have been brought in and some labor work has been done. Material maybe fully brought in, but labor may be just done 50 percent. So, even if the unit is incomplete in terms of material, it may be complete and in terms of labor, it may be 50 percent complete.

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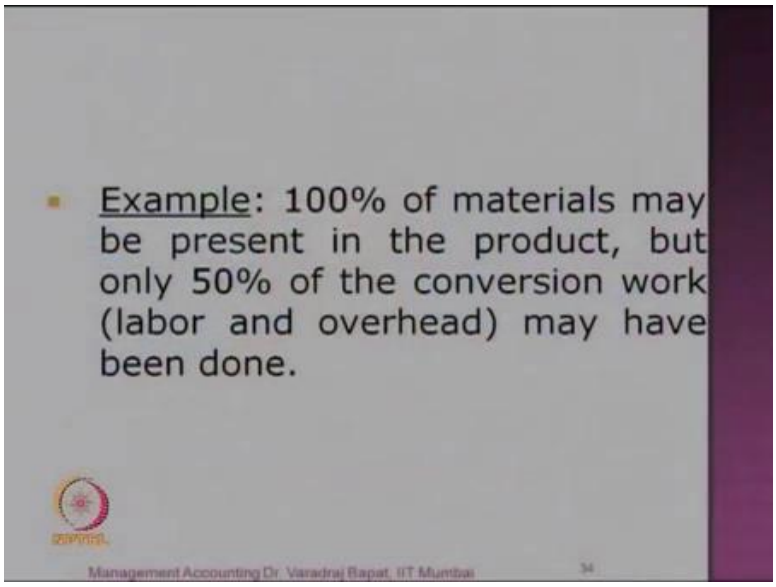

So, here is an example, which I was talking that 100 percent of material may be present, but only 50 percent of labor or overheads may be done.

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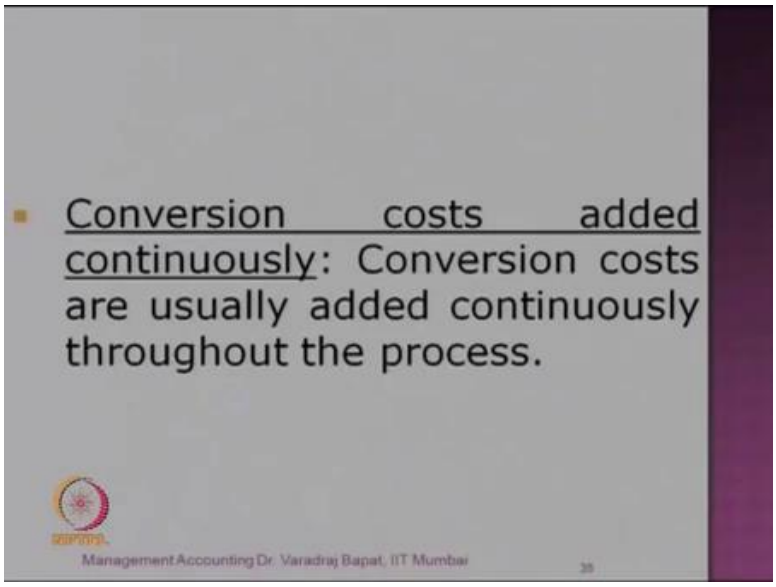

Now, conversion costs are added continuously throughout the process. So, generally, they are not fully put in, like 100 percent putting in the beginning. They are put in at 40, 50, 60 percent as the stage may be. But, material is usually fully put in at the beginning itself.

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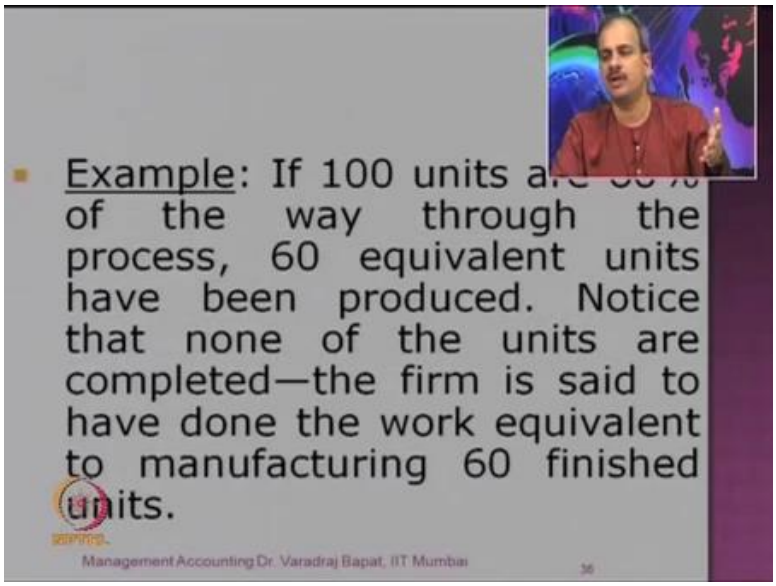

So, we have to make these estimates. So, if 100 units are 60 percent produced. We can say that, they are 60 equivalent units, but as far as material is concerned, they may be 100 units, but for labor and overheads, there may be 60 units.

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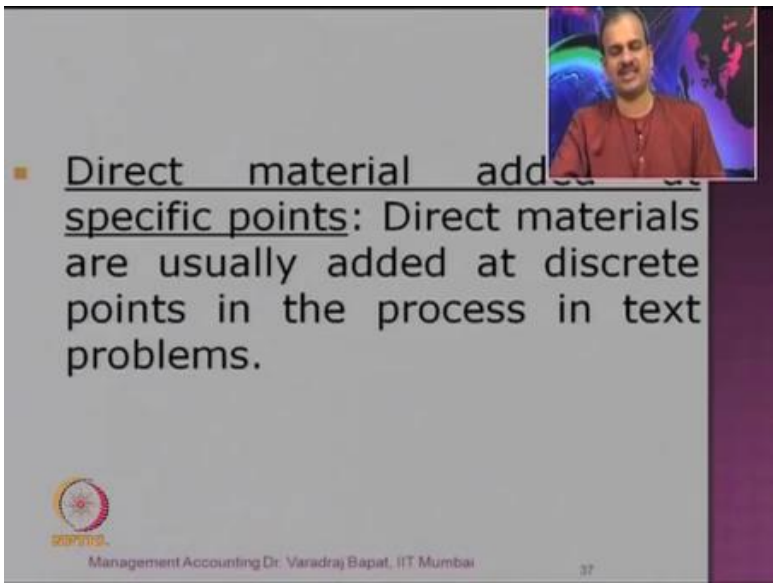

Generally, the direct materials are added at only specific points.

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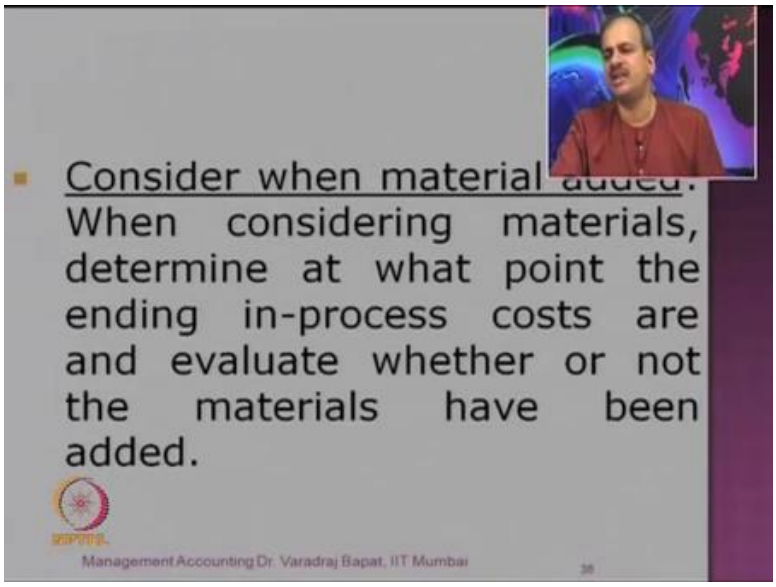

So, usually the material is fully finished, if material is partly finished, we have to consider equivalent for that also.

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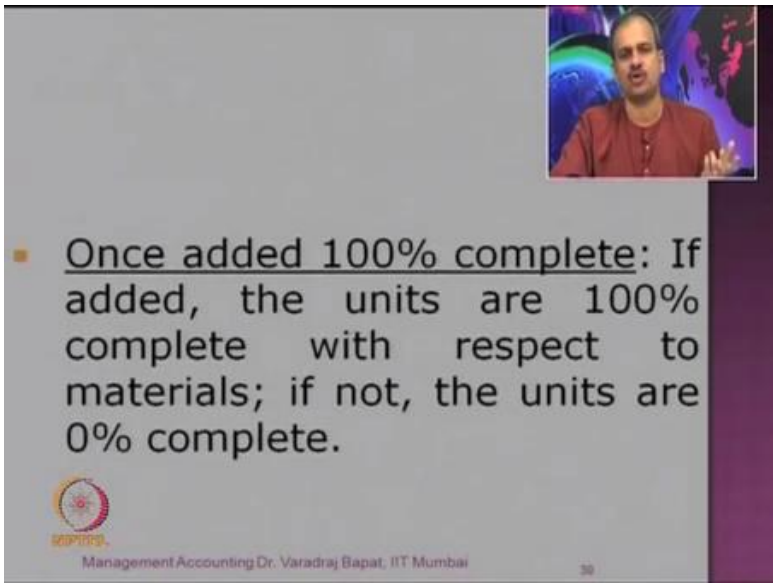

So, as far as the material is concerned, once it is added, the units are fully finished for material, if it is not added, the units will be 0 percent finished.

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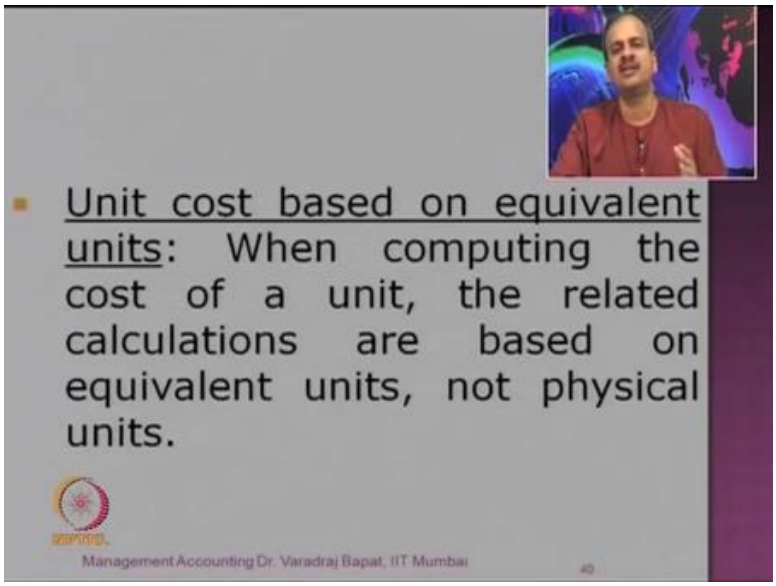

So, for calculating the unit cost based on the equivalent units, what we have to do is, we take the total cost and divide it by equivalent units and not the physical units.

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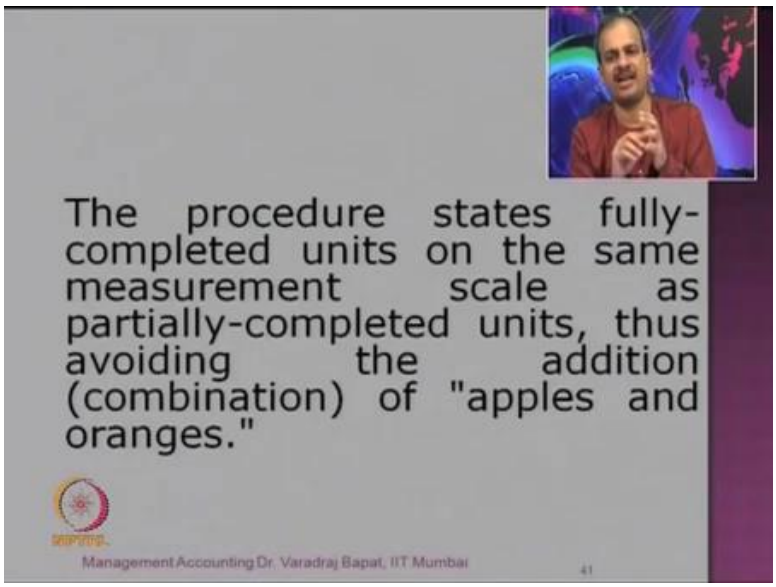

So, this is what, I was saying, you cannot add the total cost and divide it by some fully finished units and some partly finished units. So, we take all fully finished units and take proportionate or equivalent partly finished units. And the total equivalent units are divided. So, that we get a fair cost per unit.

In the next session, we will look at the cases on equivalent production. Today, to take a brief recap, we have today discussed various cases on process accounts. So, we have looked at even one case on job costing. We have looked at in process costing, we have seen, how to make process accounts. Then, we have seen the fundamentals of normal, abnormal loss and also the abnormal gain. And we have discussed about equivalent production in the next session, we will do cases on equivalent production.

Thank you so much.