Management Accounting
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Lecture-36
Material Variances- V

Welcome students, so we are learning about the material variances and in the previous class we solved a case which had multiple type of the problems there we understood the problem of wastages, we understood the problem of adjusting opening and closing stock and we try to find out that is for example in any case the price of the opening stock per kg is not available to us which price we have to use and I told you that in that case in the absence of any actual price we have to use the standard price for pricing or actually calculating the total value of the opening stock.

So in the previous class I told you that there are two things involved in the standard costing process. First thing is calculating the variances between the standard and actual and second thing is analysing the causes of variances between the two standards, two information that is standard as well as actual and in this case if you talk about we have calculated these variances and we have found out that if you look at these variances which are calculated in the previous pages, we have found out that we started with the material cost variance and there we found out that the material cost variance is 286.25 favourable.

So, now I am talking about the analysis part, analysis of the variances that how we have to analyse these variances after calculating the values. So value calculation is the first part. In the real life organizations also what happens that first they developed the standards, workable standards I can say, attainable standards after taking into consideration all the factors and then they get the actual performance when the firm goes for the actual production.

And this committee which is appointed by the firm for the review of the performance between the standard and actual they try to find out these variances that what these variances are, the values of these variances and then they try to find out the causes for that so that next time these variances can be checked can be plugged and our standards are more near to the actual production or vice- versa.

So, first part we did here we calculated all the variances after adjusting all the issues learning about all the different issues. First variance came was 286.25 favourable right and in this variance we have seen that your standard cost was more and actual cost has come down by a certain amount and the difference between these two was, standard cost was how much 6800 actual cost went down to 6513.75 so we ended up with the positive variance favourable variance of this material cost variance in this case.

So it is good, but again I told you variance is a variance whether favourable or unfavourable. By developing the standards and going for the actual production we try to minimize the gap between the two values. Our standard should be so accurate that they are at par with the actual performance or nearest most to the actual performance. If there is a variance then there is no point of calculating the standards because actual is going in a different direction, standards are going in the different directions and we are ending up with the variances.

So, it means variances have not to be there. In this case now getting a favourable variance, very important thing to be born in mind we are calculating the variances we found out, the standard cost various material cost variance is 286.25 favourable. No need to feel happy about it that our actual cost was less than the standard cost. We have to look it from the other angle also, may be it is possible that standards were set as little higher or in the higher side.

It is not the efficiency of the production department that your actual cost has come down to 6513.75 and standard was more than that. It may be possible that actual was naturally this cost or would have been actually this cost but the standard set was high. So the standard setting committee have to review their performance and they have to see are the standards set already are higher. If they are set on the higher side we will correct the standards so that next time the gap between the standard and actual performance either it is 0 or negligible.

So here it is 286.25 favourable, so now we further dissected it and if you dissect it, you will find out here that as I told you in the previous class also, cost is the function of price and quantity, and in this case when we analyse now we calculated the material price variance, when we calculate the material price variance we found out that material price variance is total means summing up both the variances of A and B, we found out that the material price variance has come up as 376.25 favourable.

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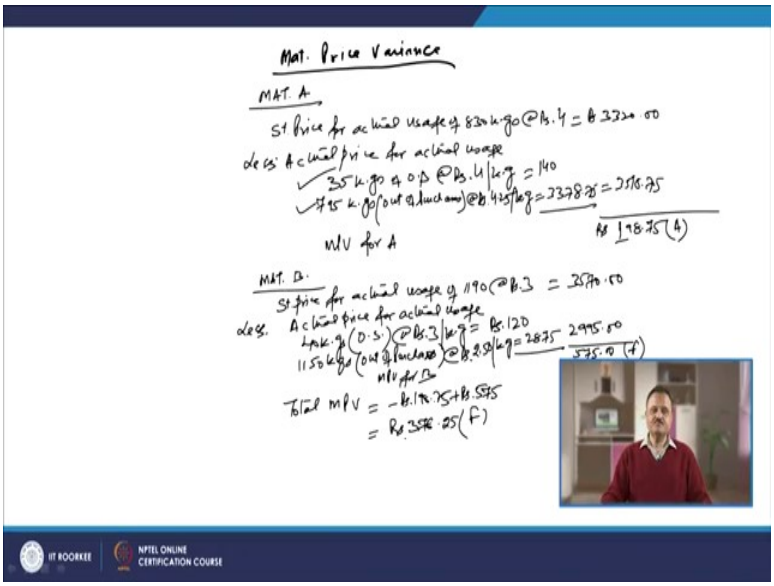

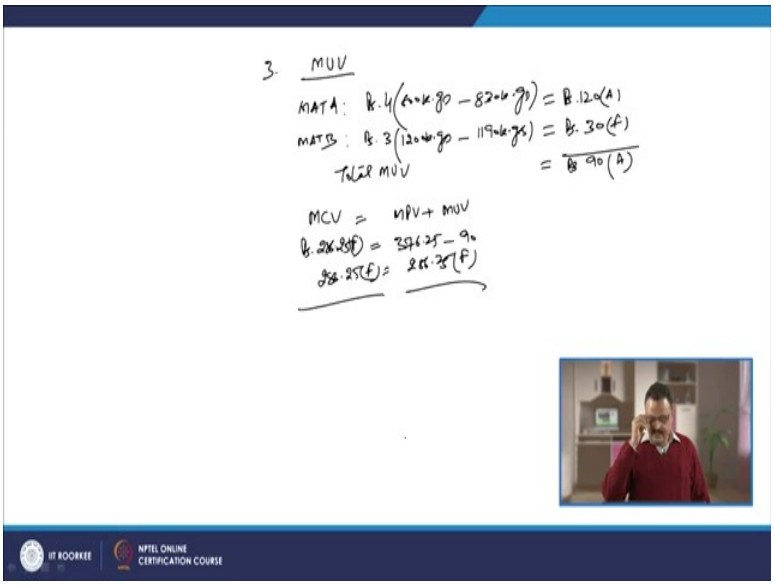

It means the price which was the standard price per kg of the material and what actually we have paid for both the inputs A and B, we have again set the higher standards but we have paid the actually less price while purchasing the material per kg and as a result of that we have got here the favourable variance of 376.25. So means the total cost variance would have been to the tune of this amount that is 376.25 provided there is no variance in the usage but when we calculated the material usage variance we found out that this variance is 90 adverse.

So it means we controlled the price, while comparing the price with the standard and actual standard set price was higher, anticipated price set was higher but actual price what we paid in the market it may be the efficiency of the purchase department we paid that less price and we ended up with the favourable variants of the 376. Here in this case now, this 376 could have been same maintained but when we move to the usage of the material, we found out that this material usage variance become negative that is adverse by 90.

Not a big amount, small amount but adverse variance negative variance so it means...what does it means? The actual quantity of both the inputs A and B we used was more than the standard prescribed quantity and we found out that finally the variances are here in this case when we calculate the variances we have found out the net variance of the summing up of two A and B was 90 adverse. Here the point of reference is that largely this variance of 90 in the material usage has been caused by the input A not by the input B.

Rather input B is favourable. So input A is 120 adverse, B is 30 favourable. So net material usage variance has come up as this 90, so this you can call it as 90 as adverse. B is within control, A is not within the control. Usage of A has been more. So now we have to find out the reason for that. We have to check it again that why the usage of the material A has increased. May be it is the reason that we purchased the material at a lesser price because if you will look at this variance, material price variance in this case if you calculate this material price variance, if you calculate this total for A it was 198.75 but in other case material B it is 575 favourable.

So you can get an idea that material A is the culprit here. There is something wrong with the material A input A. We paid higher price also for purchasing material A, we used higher quantity of the material A against the standard input of the material A of 800 kgs we have used 30 more kg's that is 830 kg's and the net variance of this A has become negative that is 120. In case of B it is very, you can call it as within the control input because you look at the price variance also here that has come up in case of the material price variance, this variance has come up as hugely largely positive and that variance is 575 favourable.

So in this case price variance also for the B is within control, usage variance is also favourable within control against the standard requirement of how much kgs, the total requirement of kg's, 1200 kg's we have used actually the 1900 kg's so this means this variance has become

favourable in case of B. So there is something wrong with the product A or the input A. We have to check it in both the cases, in case of the price also and in case of the quantity also and then try to correct it that why this negative variant is occurring at both the levels and who is responsible for that.

Whether the purchase department has paid the higher price or despite paying the higher price they have purchased the inferior quality of the material of the input A. If nothing is there if it is by chance, if it has happened by chance, we should try to find out either we have to change the standard of the input A for the next time or we have to do something with the actual performance because ultimate purpose of this variance analysis is bringing the performance, that is standard and actual performance nearer or close to each other.

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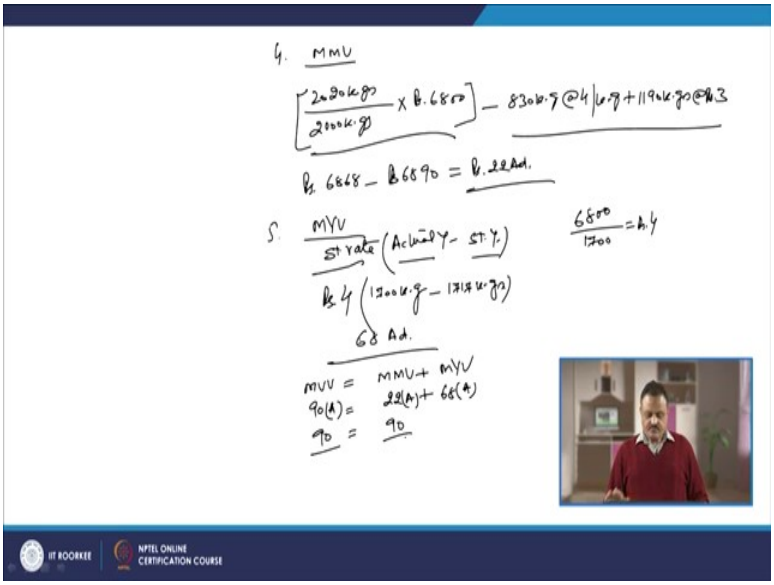

Now, we talk about the other two variances, material mix variance and material yield variance. Material mix variance and material yield variance so it means in this case material mix variance is 22 adverse and material yield variance is also 68 adverse. Not a very big amount but still they are negative variances, they are adverse variances so naturally we will have to check up with these variances also, so we are able to find out that the actual weight of the mix is 2020 kg's against the standard weight of the 2000 kg's of both the inputs A and B.

So 20 kg's we have given the input, higher input that is just because of the inferiority or because of any reason that we have used the material A more as against the standards, that's why the total input have gone up to the 2000 kg's to the 2020 kg's and in this case the variance material mix variance have become negative by marginal amount of 22 adverse but still we should try to find out the reasons for that.

And similarly, when you talk about the material yield variance because yield variance is basically the comparison between the actual yield and the standard yield, so it means when we gave or we are going to give the standard input of the 2000 kg's actual output expected is 1700 kgs after adjusting the wastage of 15 percent. Here in this case we found out is that we gave the input of 2020 kg's in the same proportion the output expected was yield expected was 1717 kg's which has not happened.

Actual output has remained same with the input or in proportion to the input but input has also changed and when you talk about the actual output you try to find out the actual output, actual output is 1700 kg's which is for the input of 2000 kg's but when you increase the input from the 2000 to 2020 kg's the output should have also gone up to 1717 kg's but it has not happened. So yield has also been affected so means there is some problem with regard to the material A input A because the price paid is also very high.

The quantity used is also very high and despite using the higher amount of the input of the input A our output is not coming up to that extent, so it means we have to check-up we have been able to find out where lies the problem and largely the problem lies with the input A so we will have to try to find it out check up with the purchase department people, check up with the production department people and if both the set of the people say that product A is not available at the standard price but at a higher price.

And the input output ratio is not what has been anticipated by the standard setting committee but different so next we can revise our standards or it may be the third possibility that we can think of replacing the present material A with some other alternative so that price is also under control output is also under control and both these price or usage or quantity they do not create any problem and our cost variance is within the control.

So these are the five variances we calculated in case of the material I discuss with you at length that how to analyse these variances and I think by now you must be very clear what is the use of the standard costing and how the standard costing is available as a very-very important tool with the management for effective management decision making and how to deal with a situation of the favourable or unfavourable variances because the objective of every management in every organization is that whenever we set the standards for anything.

We should attain those standards and if there are the deviations that are variances between the two performances it means we have to check for the reasons for that and fix up those reasons so that the gap between the standard and the actual performance either it is 0 or if it is there it is minimum that is why we have, I told you in the previous class we have fix up the minimum thrash hold level.

With the variances are say for example 5 or 10 percent we will ignore because they are expected or in the absolute terms of the variances are up to 25000 in value terms we will ignore but more than that when the cross the threshold level we will go for the analysis of the variances because here again comes up the cost and benefit into the picture. Cost of doing any operation in any organization whether in internal or external has always to be lesser than the value or the price or the output you may say we are going to have for that.

So cost and benefit, cost has always to be lesser than the benefit and if you analyse start analysing the variances for example in this case material mix variance is 22 adverse or yield variance is just 68 adverse, it may be begun the threshold level so we will ignore these variances because if you start analysing these variance the cost of analysing the variance will be much higher as compared to the benefits we are going to have out of this analysis. So always to avoid that kind of analysis which causes more cost less benefits and ultimately it is not the interest of any organization.

So that is why the threshold level is there and threshold level is fixed up by keeping into consideration the cost and benefit an in every management decision which is the mantra of the management accounting that whatever the decision you take always keep in mind the cost and benefit. Cost had always to be lesser than the benefit arising out of it, coming out of it and if that is going to happen we will take that decision, we will implement that decision, we will execute

that decision but if that's not going to happen we will simply ignore the decision, we will drop the idea, we will drop the decision.

So this is one part we have discussed till now in the standard costing with regard to the material variances because material variances are very-very important to be analysed. As I told you earlier that material cost constitutes somewhere 50 to 60 percent of the total cost of the product and for example if it is even 50 percent and you are able to reduce the material cost just by 10 percent you are able to reduce the total cost of the product by 5 rupees and 5 rupees is a very big amount, even by 5 percent than 2.5 rupees again it is a very big amount.

So you can add up that into your profitability or you can reduce the price of the product, increase your market share and thereby increasing your total profits. So in this case we will have to discuss or there was a need to discuss all these variances material variances in detail, so I discuss with you these 5 variances we further dissected them also and try to learn also how to verify these variances. Material cost is equal to material usage and material price variance and material usage is equal to the material mix and the material yield variances.

So, regarding the material variances I will stop here now the next part is the analysing the labour variances because second component in the total cost of the production is the labour. Second component is the labour. Labour cost is in some 15 to 20 in some cases it is 25 percent also. So in the public sector units in India where the salaries are to be paid on a certain basis and they have to be aligned with the cost of living and so many other conditions price level in the market, the price or the wages we pay or the salaries we pay to the permanent employees they are little higher in total amount.

So sometime it reaches up to 25 percent of the total cost of the production. So, this is a next head of the total cost and this next head of the total cost of the product is the labour expenses and those labour expenses we will check up and we will try to understand that how to find out the labour variances, how to analyse the labour variances and how to control the labour variances. So, now we will go ahead and we learn about how to calculate the labour variances and for calculating the labour variances we will have to try to find out what are the formulas available.

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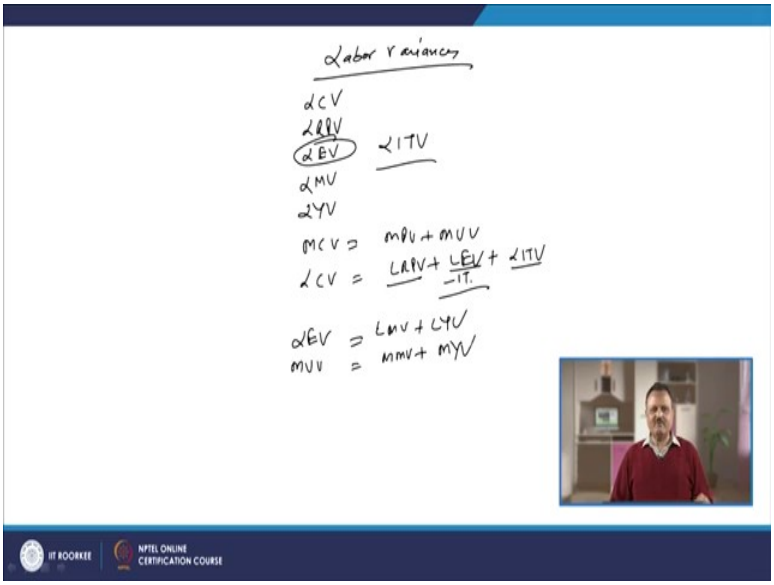

Process is same. The process of analysing the labour variance is also same as the process of analysing or calculating the material variances was. In the material variance we calculated 5 variances. Material cost variance, material price variance, material quantity variance, material mix variance and material yield variance. In this case also in the labour also same 5 variances we will calculate only the word material will be replaced by the word labour.

Largely the overall set of conditions and set of terminology will remain the same only you will be replacing the material with the labour in this case. So, when we are going to analyse these variances we are going to calculate the 5 variances again that is labour cost variance, first is the labour cost variance second is the labour rate of pay variance we call here as the LRPV it is not a material, there is a material price variance here it is labour rate of pay variance at what rate we pay to the labour or our other employees or may be to the blue collar employees on the plant. Then is the next is the labour efficiency variance.

There it was material usage variance here we will replace it with the labour efficiency variance and then we talk about the labour mix variance or another name of this variance is the gang composition variance and then finally we will be calculating the other variances also. So, in this case first part is the labour cost variance, labour rate of pay variance, labour efficiency variance, labour mix or the gang composition variance and lastly the variance is labour yield variance.

There material cost here labour cost, there material price here labour rate of pay variance, there material usage here the labour efficiency because usage is also somewhere linked to the efficiency. There the material mix variance, here it is the labour mix variance or the gang composition variance. There it is the material yield variance; here it is the labour yield variance. In between we calculate one more variance also just correctly find out the efficiency of the labour and that variance is called as the LITV variance, Labour Idle Time Variance.

Why and when this variance has to be calculated or required to be calculated there are different situations that some time the labour time goes as ideal not productive. Now, the labour can be non-productive for 2 reasons: One reason is that they are efficient workers and they are simply killing time by not doing their job sincerely, so there is idle time we are paying them for and their output is not up to the mark. So their efficiency is having a question mark or their efficiency is affected, one.

Second is an uncontrollable reason, for example, if anything happens in the plant, there is no power available in the plant, labour is available but power is not here, so we anticipate or we anticipated in the beginning that the power will be available for 20 hours but that was available only for 18 hours a day. So it means labour is available power is not there. So, this is uncontrollable reason. So you will not this means no firm will take any action against the labour because that efficiency has been affected negatively because of one reason and that is the idle time.

But idle time was not because of the say any you can call it as say non-performance of labour but because of the factor which was beyond the control of anybody. So we will have to find out that what is the idle time. If you for example you calculate the labour efficiency variance and you do not say subtract the idle time so in that case what would be the variance? It becomes negative variance because standard efficiency expected was something else.

When the actual will come down, you will say the variance is negative, and when it is negative then we waste our time blaming the labour that they are non-productive, that they are wasting time at the plant and that they are not working sincerely. So in that case, first of all you calculate the labour efficiency variance and while calculating that the labour efficiency variance the labour efficiency variance is basically that is the standard rate multiplied by, I will put the formula here.

Standard rate multiplied by standard time minus actual time… So the actual time, from the actual time, you will have to subtract the idle time and then you have to calculate a separate variance of what you call a labour idle time variance. So how is it important and how to apply the check here? In case of material variances, we say that the MCV equals to MPV plus MUV. In this case what will you do? Labour cost variance is equal to LRPV plus LEV plus Labour efficiency variance, labour rate of pay variance plus labour efficiency variance. You see almost both the things are the same.

So, labour cost variance has to be equal to the labour price and labour efficiency, but when you say that when you have subtracted, when the idle time problem is there, so what will you do here? You will subtract the idle time from this efficiency time and from the efficiency variance and while subtracting this amount efficiency variance will change and then you will add it up here also i.e. the LITV Labour Idle Time variance, then the sum of these three will be equal to the labour cost variance.

Why do we segregate this? Why do we subtract this? Just to find our or highlight that efficiency is not affected because of the non-productivity of the labour but it is affected because of some extra non-controllable reasons. So, you should not mean fire your labour or you should not assume or you should not misconclude that the labour is irresponsible or non-productive and then we talk about the labour efficiency. Labour efficiency has to be equal to LEV has to be equal to Labour Mix Variance and Labour Yield Variance.

Labour Mix variance and Labour Yield Variance, there it was, what was the case in the material variance? Material usage variance, material usage variance was how much? That is the material mix variance plus material yield variance. So these variances are almost same. As I told you in the beginning you have to replace the word material in the first case with labour in the second case. Largely, if you calculate these variances, only one variance we are adding here that is LIPV and that to find out that the efficiency of the labour has been negatively affected.

Why it has happened? Whether the labour was non-productive and it was a controllable factor and we did not control it? Or the labour was sincere, they were available but the reason was uncontrollable because no power is available or sometimes no material is available. So, when

there is no power, no material is available, what will the labour do? They will come, sit in the plant and then they will go back.

So, one additional variance we will calculate here is what we call as LIPV, but other variances are mostly same as compared to or it means if you compare these with the material variances, you are simply replacing the word material with the word labour in labour here and others are same. There also material cost variance here it is labour cost variance, there is material price variance, here labour rate of pay variance.

There is material usage variance here is the labour efficiency variance, there is a material mix variance here it is labour mix or the gang composition variance and then there is the material yield variance and here labour yield variance so everything is same all the variances are same and now next thing is we learn about how to calculate these variances. How to calculate these variances? What are the standard formulas available for calculating these variances and then we will discuss some cases, some problems or some cases so that you may come to know how to analyse these variances.

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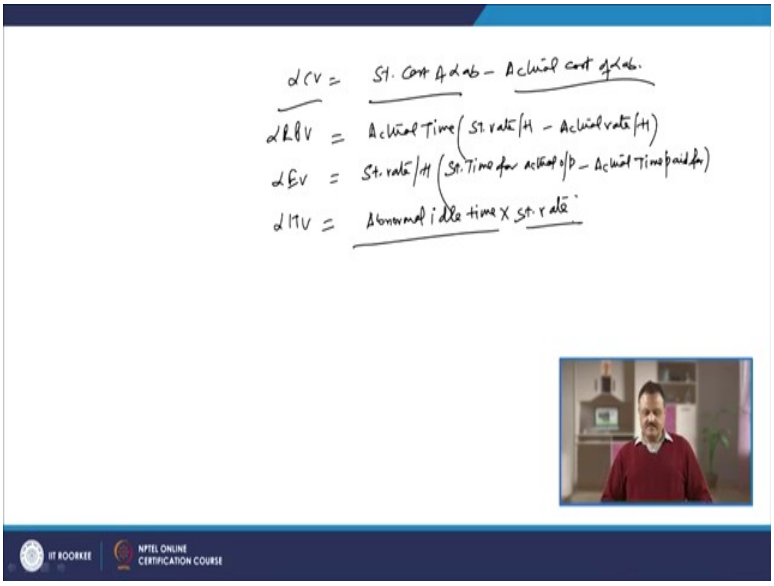

So, let us go about learning about how to calculate the variances. So first variance is as I told you is the Labour Cost Variance. Labour cost variance is basically what? It is the standard cost of labour minus actual cost of labour. Standard cost of labour minus actual cost of labour which is

the labour cost variance. Standard cost of labour minus actual cost of labour which is you call it as a labour cost variance. Simple, and now the next variance is Labour Rate of Pay variance LRPV.

LRPV Labour rate of pay variance, for calculating the labour rate off pay variance now what was there in that case, it was the actual quantity. Now we will write here actual time multiply standard rate per hour. It depends upon the units if the time given to us. It may be per hour, it may be per day, it may be per week, it may be per month. So depending upon that unit of the time given to us we will have to take that, so, actual time into standard rate per hour minus actual rate per hour.

There what we were doing, it was actual quantity into standard price per unit minus actual price per unit and the third variance is the labour efficiency variance. In case of the labour efficiency variance what you will do here is standard rate per hour multiply standard time for actual output minus actual time paid for. These are the 3 variances and then the labour idle time variance LITV. So, for calculating the labour idle time variance, we will be using the formula abnormal idle time multiplied by the standard rate LITV.

After this we will calculate the labour mix or the gang composition variance and the labour yield variance so labour gang composition variance or the labour mix variance has a different situation as in case of the material mix variances we saw there were 3 different situations. Here also in the labour mix variance or the gang composition variance we have again 3 to 4 situations and we will have to use 3 to 4 formulas and for finding the labour yield variance we will have to use a different set of formula.

So those formulas in detail, that are the labour mix variance and the labour yield variance we will discuss in the, or we will learn in the or we will know in the next class and after that we will move to solving some of the problems with regard to the labour variances. Thank you very much!