Working Capital Management
Dr. Anil K. Sharma
Department of Management Studies
Indian Institute of Technology-Roorkee

Lecture - 11
Weighted Operating Cycle

Welcome students. So in the last part of discussion we were talking about the concept of operating cycle which is very useful tool in assessing the or estimating the working capital requirements of a firm. So we saw that how the operating cycle works and what are the different stages of the operating cycle.

And the objective under the operating cycle is that the cash invested in buying of the raw material and converting that into finished product should be converted back into the cash. So there as I told you in the last class also the objective of the firm should be to minimize the duration of the operating cycle and to complete maximum operating cycles in a year, in a period of 360 or 365 days.

So that will depend upon that how you manage your operating cycle and that depends upon some external factors also which are uncontrollable but to a larger extent the factors remain controllable and if we take a proper care of everything then I think the duration of the operating cycle can be kept under control. So in that part we discussed that we have 2 types of the operating cycle.

One was the gross operating cycle GOC and the other one was the net operating cycle NOC and we learnt that how to calculate the gross operating cycle and how to calculate the net operating cycle.

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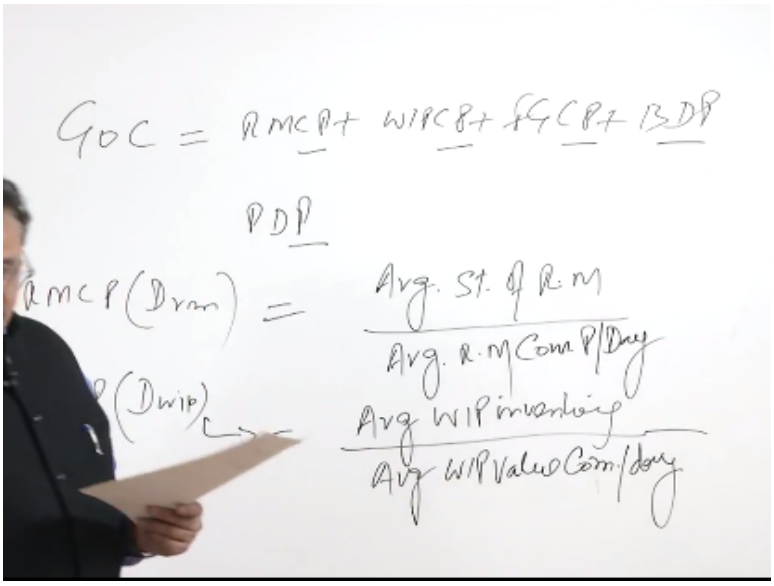

Now we will learn about that in case of the GOC we saw that the different stages which we work that is the raw material conversion period plus the WIP conversion period plus finished goods conversion period and then plus the BDP that is the book debts period. So how to calculate these periods how to calculate these durations.

For calculation of these periods or for calculation of these durations means conversion period at the stage of raw material, at the stage of WIP, at the stage of finished goods, and at the stage of book debt how to calculate these conversion periods that is now we are going to learn and then is the similarly we have to calculate the PDP also that is payment deferral period and that P also has to be calculated.

And how to calculate this payment deferral period that is also another important point to learn so that we can quantify it and we can convert the total information given to us into number of days and then we sum up the 4 periods. We calculate the GOC - PDP is the net operating cycle. So it means for calculation of these periods we have certain formulas or certain systems and we can use these formulas and we can with the help of these formulas we can calculate this duration.

So now for example we are now going to talk about say first thing is that is the raw material RMCP raw material conversion period or in a way we call them as the Drm duration of raw material. This is called as under the other name also duration of raw material that is raw material

duration at that for how much time raw material remains as raw material. So you can calculate this duration with the help of this formula.

That is average stock of raw material, average stock of raw material divided by raw material average raw material converted or committed per day. Average raw material committed per day. How much raw material we have committed per day that is average raw material committed per day. How much raw material we are say buying or we are using that is committed per day. This is the formula for calculating the Drm or RMCP.

That is the average stock of raw material and divided by the average raw material committed per day. So it means this is the way we can calculate the duration of the raw material. Now we have to calculate the second that is the WIPCP. WIPCP or you can call it as it is the Dwip duration of the work in process and for calculating this duration of work in process what you have to do is average WIP inventory average WIP inventory divided by average divided by average WIP value average WIP value committed per day.

How much per day how much WIP work in process we are having with us. So that is the WIP average WIP committed per day. This is how we can calculate the work in process conversion period or duration of the WIP and then we have to calculate the Dfg duration of the finished goods. How long the finished goods remain as finished goods and how much time they take to stay in the firm.

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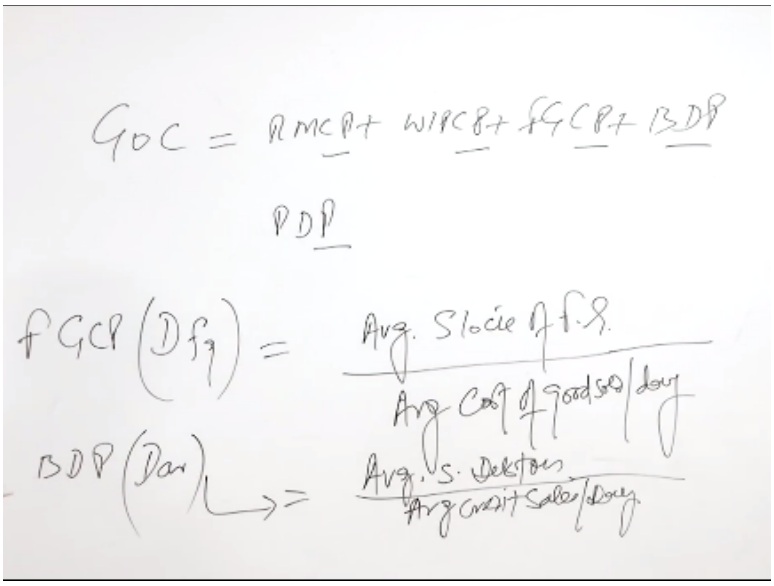

So it called as the FGCP, FGCP or you can call it as the Dfg duration of the finished goods. Finished goods staying at the finished goods stage that is average stock of finished goods divided by average stock of finished goods divided by average cost of average cost of goods sold, average cost of goods sold per day, average cost of goods sold per day. So this is how we can calculate the say duration of the finished goods.

That is the Dfg duration of the finished goods or the finished goods conversion period and then we have next thing is that is the BDP book debt period or in other words you can call it as the Dar duration of the accounts receivables. So duration of the accounts receivables can be calculated how that is average sundry debtors average sundry debtors divided by average sundry debtors divided by average credit average credit sales per day.

So this is the way we calculate the book debt period or the duration of the accounts receivables and lastly we will learn how to calculate the duration of the that is the PDP payment deferral period or the duration of the accounts payable which is called as Dap duration of the accounts payable that is Dap.

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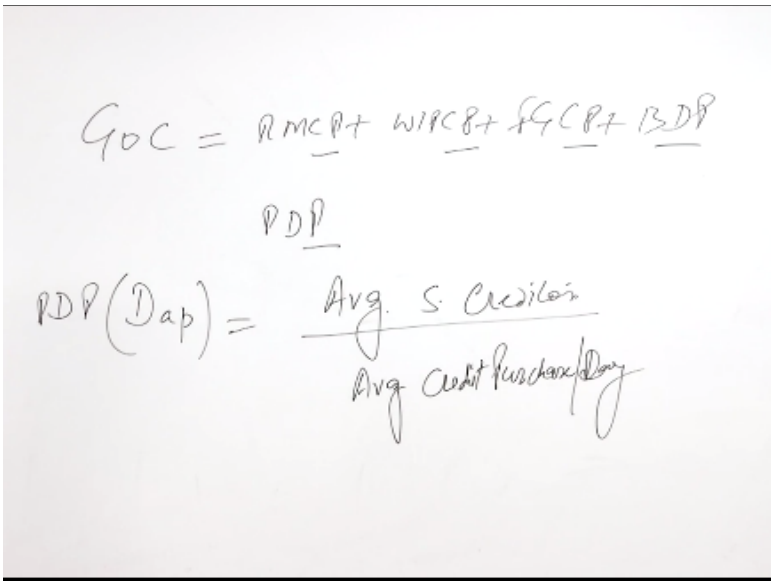

So it means PDP payment deferral period or duration of accounts payable and for calculating that what we have to do is that is average sundry creditors divided by average credit purchase average credit purchase per day average credit purchase per day so we can calculate this duration that is PDP or the Dap that is average sundry creditors we have and then average credit purchase we are making per day. So this way we can calculate this duration.

So if we have this durations with us, all the 5 durations with us, we can easily calculate the gross operating cycle and the net operating cycle and that duration that length of the operating cycle will be known to easily known to us. So now let us say use these formulas and these methods to calculate the duration of our operating cycle. And for this purpose we have some problems we have prepared some problems.

And these problems the some information which is available with us, we will use this information and by using this information we will try to calculate the duration of operating cycle. We will try to calculate the duration of operating cycle. So if we see the problems are given.

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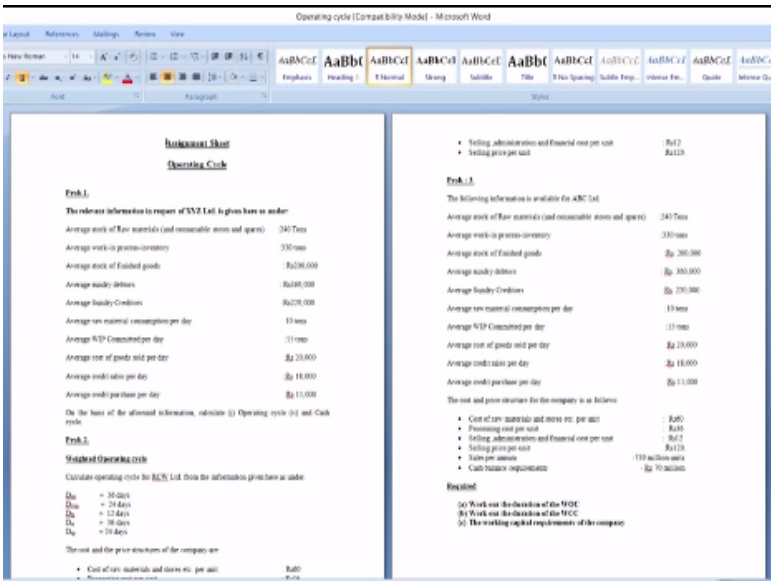

There if you look at the slides the problems are given there and in those problems we are given say for example first problem is that the relevant information are given here as under and in this case average stock of raw material is or for a say average stock of the raw material and the consumable stores and spares we are given that information. Average work in process we are given. Average stock of finished good we are given.

Average sundry debtors we are given. Average sundry creditors we are given. We are already given. Average debtors means how we can calculate the average debtors, opening debtors and closing debtors. For example in any year what were the opening debtors, opening balance of the debtors and what was the closing balance of the debtors of that year. If you take the sum of these 2 and divide by 2 you can calculate the average debtors. Similarly, the average creditors.

Then average raw material consumption per day. And committed or consumed per day. Then is the average WIP committed per day. Then average cost of goods sold per day. Average credit sales per day which is given to us is 18000. Average credit purchase per day is 11000. So on the basis of the aforesaid information we will have to calculate the operating cycle and the net there is a gross operating cycle and the net operating cycle.

Gross operating cycle is called as operating cycle. But the net operating cycle's another name is cash cycle. The other name is cash cycle. So net operating cycle or cash cycle is the same and

operating cycle or the gross operating cycle is the same. So now let us calculate the say operating cycle, the duration, different durations and then we calculate the duration of the operating cycle and then we calculate the duration of the cash cycle from this information which is available with us.

So now as we know the formulas already so now we will calculate the Drm or RMCP, duration of raw material right.

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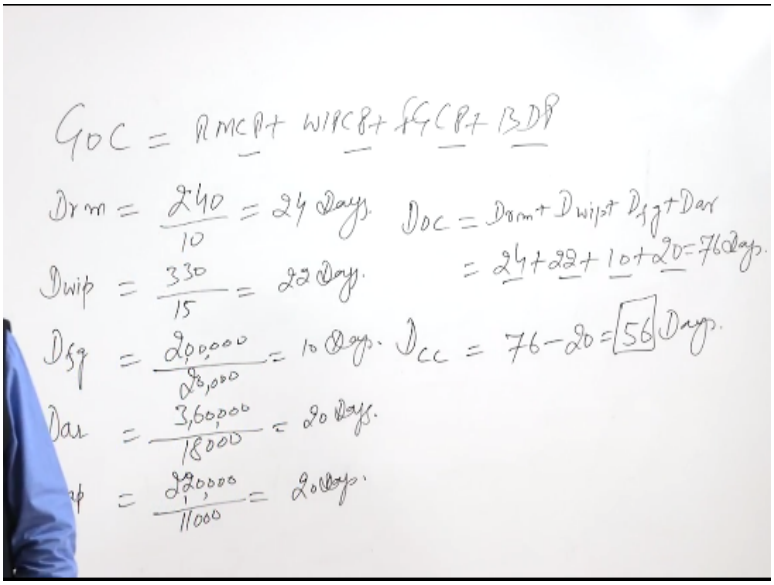

For calculating the duration of raw material what information is given to us, average stock of raw material. Average stock of raw material is say average stock. The formula requires average stock of raw material divided by average raw material consumed per day and you are also given the average raw material consumed per day and that is the say 10000 kgs are given to us. So it means you can say that Drm is 240 divided by 10.

So this duration works out as how many days 24 days. This is 24 days. Now we will calculate the Dwip or you can say it is the WIPCP. You are given the say the formula says that is the average WIP inventory we have divided by the average WIP value committed per day. So it means WIP we are given information about the WIPs that is 330 tons, 330 tons divided by average WIP value committed per day which is given to us that is 15000 kgs.

So it means 330 divided by 15000 kgs. This works out as how much. This is 22 days. This is 22 days and then we have to go for the next duration, for calculation of the next duration, which is called as FGCP or we call it as Dfg and Dfg here is that is the requirement of Dfg is how to calculate it average stock of finished goods divided by the average cost of goods sold per day. So what is average stock of the finished goods, say for 2 lakh rupees.

That is for 2 lakh rupees the average stock of finished goods that is 2 lakh rupees and what is the denominator requirement of the denominator that is the average cost of goods sold per day. Average cost of goods sold per day is 20000. So it means it is 20000. So this is you call it as how much duration this is 10 days. The duration we have calculated here is 10 days. Then we have to calculate now the Dar duration of accounts receivables or the book debt BDP book debt period.

So in this case the accounts receivables here the requirement is average sundry debtors divided by the average credit sales per day. So what is the average sundry debtors that is the 36000 divided by the average credit sales per day and average credit sales per day how much that is 18000. This is 18000. So look at the information given there in these problems, first problem we are dealing with. So this is the information we are taking and if we calculate this. So what is the duration here. This works out as how much that is 20 days.

This is 20 days and now we have to calculate the last duration, 5th duration which is Dap duration of accounts payable and if you calculate the duration of accounts payable what is the requirement? The requirement is average credit sales divided by the average sorry average sundry creditors not credit sales but average sundry creditors divided by the average credit purchased per day. So what is the sundry creditors?

Sundry creditor average sundry creditors are 220000 2 lakh twenty thousands divided by the average credit purchased per day. How much is average credit purchased per day. This is 11000. It means what is the total duration this is 20 days. This duration is 20 days. So now we have calculated all the 5 durations and easily we can calculate the duration of the operating cycle so we would say that duration of operating cycle is that is DOC.

Duration of the operating cycle is DOC and DOC is how Drm+ Dwip+ Dfg+ Dar right. These are the 4 durations and we have already calculated these durations 24 then is 22 then it is 10 then it is 20 days. So how much it is total. This works out as 46 then 56 and then it is 76 days. Total is 76 days. This is 76 days duration of the operating cycle or you can call it as the gross operating cycle that is DOC.

And now we have to calculate the net operating cycle and net operating cycle's other name is the cash cycle. So DCC is equal to how much 76 - 20. So this works out as how many 56 days. This is the 56 days. So it means in this case in this company's case if you talk about this company or this company's case you can say that their operating cycle is of 56 days.

Means the day when they purchased the raw material and when that raw material is converted into the finished product and finished production to sales and then cash is again converted back into cash this time period, total time period taken in case of this company is 56 days. So this is the duration of the net operating cycle. Actually the duration of the operating cycle was 76 days but since for 20 days the suppliers are allowing the credit or the credit period which is allowed by the suppliers is 20 days.

So it means finally the company's cash, company's cash is blocked for how many days? Company's cash is converted into cash in how many days that is 56 days. For 20 days company did not invest any cash on account of raw material and raw material is the larger chunk so it means that company only invested for a period of 56 days larger chunk of the cash and this is the duration or this is the length of the operating cycle.

So you can easily understand that in a year how many operating cycle the company can complete and one operating cycle is requiring how much capital that will be for us the next stage to learn. For us that will be the next stage to learn but first we are learning how to calculate the duration of the operating cycle. So we have learnt the simple operating cycle and which has 2 components gross operating cycle and the net operating cycle.

Now the limitation of this operating cycle is which is a simple operating cycle, the limitation of this operating cycle is that it gives the equal importance to all the level. It gives the equal importance at all the levels. Maybe it is a raw material conversion stage or whether it is the WIP conversion stage or whether it is the finished goods conversion stage or accounts receivables it gives equal importance to all.

Whereas if you talk about the total selling price or the total cost of goods sold in that total cost of goods sold the composition of raw material is much larger as compared to the other input cost. So some people say that we should calculate the operating cycle or duration of the operating cycle by keeping into consideration the importance of different stages of the operating cycle. Raw material because it requires the largest amount of investment, biggest amount of investment.

So what we should do here that we should try to give more importance to the raw material stage because more investment, blocked for more number of days. So more importance should be given for that. Then at WIP stage our major chunk is the raw material. Other components are small so that should be given comparatively lesser importance or proportionate importance should be given to the different stages while calculating the duration of operating cycle.

So there is a concept of calculating weighted operating cycle. There is a concept of calculating weight operating cycle. Now what is the concept of weighted operating cycle? The weighted operating cycle requires that when you are calculating this duration of 24, 22, 10, and 20 days it is the simple duration that how much time it takes to convert the cash into raw material and raw material into WIP.

WIP into finished goods, finished goods into accounts receivable and accounts receivables into cash. But if you want to calculate the weight operating cycle so what we have to do here is you have to multiply this duration with something which is called as W or that is called as weight. We have to calculate some weights or to these durations on the basis of the importance of these durations we should calculate some weights and multiply these durations with the weights.

So that we can calculate more appropriate more meaningful operating cycle which is called as the weighted operating cycle. So there is a concept of the weighted operating cycle and we will learn how to calculate the weighted operating cycle. That is W weighted operating cycle means WOC. It is not a simple operating cycle but the weighted operating cycle. So in this case what we will do now. We will have to require 2 things.

One thing is the duration or number of days at the different stages that is called as duration that is the Drm, Dwip, Dfg, and Dap. Similarly, Dar also Dar and Dap and second information we require is that that duration has to be multiplied with the weight. So, so far we have learnt how to calculate those durations, 5 durations but we have not learnt how to calculate the their respective weights.

For learning the respective weights we will be now using certain formulas and we will be learning how to calculate these weights so that we can easily calculate the weighted operating cycle. So for calculating the weighted operating cycle we will have to calculate the weights so how to calculate the weights?

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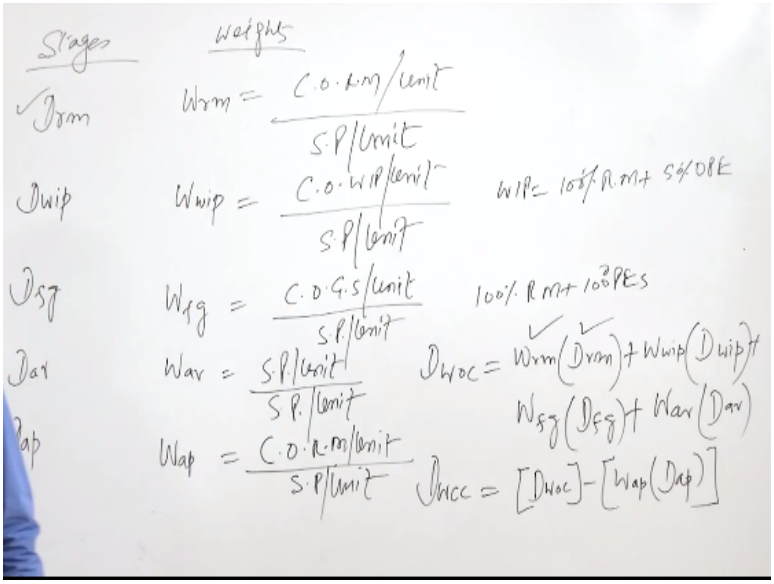

Here we write here as the stage or the stages and then we write here as weights. These are the stages and these are the weights. So we know or we will learn how to calculate the weights are different stages; stages and weights. So we have different stages. First stage for us in the

operating cycle is the Drm duration of the raw material or raw material duration. This is called as Drm. This is Drm right. We know how to calculate Drm.

Now we will learn how to calculate something which is called as Wrm. Wrm is the raw material, weight of the raw material. Weight of the raw material. So weight of the raw material will be, how to calculate it? Cost of raw material, cost of raw material per unit. Cost of raw material per unit. Cost of raw material per unit divided by selling price per unit, selling price per unit. Because we are taking at the weights that is the selling price.

Selling price will be the common denominator while calculating the weights. Weights are required people say experts say that see that different inputs are different in their weights and volumes. So when you talk about the raw material, cost of raw material it is 50-60% of the total selling price or total cost of the product you can say, not selling price, the cost of the product. So it should be given a different weight.

Then the WIP, raw material is already weighted and then some expenses which we are utilizing like power, water, other inputs for processing that to the first stage then those expenses should be added. So we should calculate the proportionate weight of the WIP. Then weight of the FG finished goods and then the weight of accounts receivable and then the weight of accounts payable.

So we are learning that we know how to calculate this duration and now we are learning how to calculate the Wrm that is the weight at the raw material stage and weight of the raw material stage can be calculated that is cost of raw material per unit divided by selling price per unit. Second stage is Dwip. Second stage is Dwip and the weight of this stage is Wwip. It is the weight of this stage or the weight at this stage will be Wwip, Wwip.

And for calculating this what we have to do is cost of WIP cost of WIP per unit divided by selling price per unit. Cost of work in process per unit divided by the selling price per unit. Here while calculating the cost of WIP we use certain say pre-decided proportions. Then how to calculate the WIP? WIP means work in process. So in this we will take the 100% cost of raw

material, 100% cost of raw material plus 50% of the other processing expenses OPE, 50% of the other processing expenses.

Because finished goods requires raw material plus the processing expenses. Water we need, power we need, other inputs we need. So the WIP stage we count them for only 50%. If nothing else is given in the problem, only we will take into account is that is the cost of raw material per unit full plus half of the processing cost per unit we will have to add to calculate the cost of WIP per unit. Then we have to go for the Dfg duration of the finished goods.

And for Dfg we have to calculate the Wfg. Weight of finished goods, and the weight of finished goods is cost of goods sold per unit, cost of goods sold per unit divided by selling price per unit, selling price per unit. COGS cost of goods sold per unit divided by the selling price per unit. We do not add up the profit. We do not call it as the selling price. Cost of inished goods is that we are taking only the cost part not the profit part so that is why it is called as the COGS.

While calculating COGS what you will take here that is 100% of raw material plus 100% of processing other processing expenses OPE, other processing expenses 100% now. We have taken 50% at the WIP stage. At this stage we will take the 100%. So this is how we calculate the weight that is the Wfg that is the weight of the finished goods and then we have the 2 more weights.

So for calculating 2 more weights that is the next stage is the Dap duration of accounts receivables, Dar. So in this case you have to calculate the weight of War weight of accounts receivable and for calculating the weight of accounts receivable what we do is selling price per unit divided by selling price per unit. This weight is always 1. So accounts receivable we assume at the selling price not at the cost price.

So it is the selling price per unit divided by the selling price per unit. So weight is always 1 and the last weight we have to calculate is that is for the Dap that is the duration of accounts payable stage and the weight has to be Wap. So this is basically accounts payable. Normally come into a

distance because of what. It is only because of the raw material. Only because of the raw material.

Because we buy raw material on credit or we have supplied the raw material on credit by suppliers. So because of that the accounts payables exist in the balance sheet. So that weight will be same. That is how to calculate that weight that is same that is cost of raw material cost of raw material because your accounts payable are going to be same, what is the amount of your raw material.

So cost of raw material per unit, cost of raw material per unit divided by selling price per unit, selling price per unit. Cost of raw material divided by the selling price per unit so you can easily find out the weight for this. So it means weight for the raw material stage, raw material duration and for the accounts payable will be the same and for the others proportionately the weights keep on changing and the total weights for all the 5 durations we can calculate.

So for calculating the weight operating cycle, for calculating the weight operating cycle how would we calculate the weighted operating cycle? D that is called as the D weighted operating cycle duration of the weighted operating cycle that you can calculate with the help of this formula like Wrm(Drm)+Wwip(Dwip)+Wfg(Dfg)+War(Dar). This duration of accounts receivable you are multiplying with each other.

So this will give you the duration of the weighted operating cycle. Now simple change we have made here is earlier this was only there. Now we have multiplied with this at all the 4 stages and then for calculating the weighted, duration of the weighted cash cycle, you can use you can do how you can do is that is the duration of the weighted operating cycle minus that is the Wap into Dap, Wap into Dap. So this way we can calculate the weighted cash cycle.

So we are multiplying by the weights. So we are calculating the duration of the weighted operating cycle and the duration of the weighted cash cycle. So how to calculate now the weighted operating cycle, how to calculate the weighted cash cycle for that we will be using the information given in the second problem and with the help of this information we will try to

calculate the weighted operating cycle, the information given in the second and third problem and then we will be clear about that how to calculate the weighted operating cycle. That we will do in the next class. Thank you very much.