Cost Accounting
Prof. Varadraj Bapat
School of Management
Indian Institute of Technology, Bombay

Lecture - 16
Functional Budget

[FL] In our last session, we had started discussion on budgeting and budgetary control. In general, if you remember budget is an estimated statement, but that is not all. It is prepared prior to the period for which it is prepared. It is a quantitative or financial statement and it is prepared to achieve some goal or a target. So, a policy to achieve that target is prepared and that policy in quantitative terms is built up in the budget. We have also understood and discussed various types of budgets.

So, time wise one may categorize, it as a long-term, short-term and current budget or one can also categorize it as per the functional versus masters budget. So, in the functional budget, we prepare budgets for each function and all those budgets are consolidated and summarized in the form of a master budget. We have also seen a specialize type of budget known as zero base budget, do you remember that.

So, zero base budget essentially is a budget which is prepared from scratch. Since, the traditional budgeting system is heavily dependent on last periods budget and actual, this different system has been evolved. Typically, a budget is based on last year's budget and last year's actual. We make a few changes as per the current scenario which gives us the current budget. But in case of zero base budget, it is called as budgeting from scratch. So, we do not consider last year's budget as automatically authenticated. Every expenditure needs to justify itself and then only it can be added in the current budget. I hope you remember we have discussed all these basic concepts on budget.

In the current session, we will mainly focus on the cases involving different types of Functional Budget. So, do you remember what is a functional budget or what is a master budget for that matter? You know that master budget is in a form of a consolidated P and L or a balance sheet. It is a co-ordinate effort where the resources are co-ordinated and allocated two different functions and the end result is a master budget and for each function, we make a separate budget that budget is called those budgets are called as functional budgets.

So, what are those budgets? What are the different functions; can you tell me 4-5 functional budgets? On the screen, you are able to see one budget I know that is Material purchase budget.

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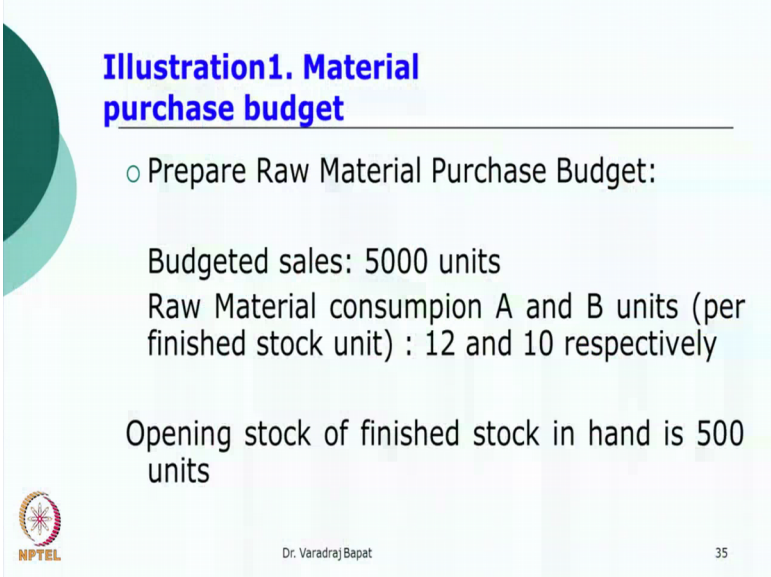

But it comes later on. Normally any business activity start with the demand. So, one needs to do market research and prepare a sales budget, as to how much we are likely to sell. Depending on the sale budget we need to manufacture. So, from the sale we prepare purchase budget, sorry from the sale we prepare production budget. Based on the production, we need raw material. So, we prepare a raw material consumption budget. Because we need to consume, we need to buy; so, we prepare raw material purchase budget. Getting it? This is how one after another, functional budgets are prepared.

In the same way, for the production we need manpower. So, we need to prepare manpower budget. Now because we need manpower, we need to recruit so, maybe we need to make a recruitment budget. We have to make fixed overheads budget; variable overheads budget; R and D budget and so on. All these are called as different types of masters budget ok. Now with this much of conceptual understanding, let us go for cases for preparation of budgets ok.

Now, illustration 1 is already in front of you which is on material purchase. Some information is given about budgeted sales, raw material consumption needed and the opening stock. Based on this, we will have to prepare raw material purchase budget fine.

So, go through it and if you have got a printout, you can take it from the printout also and start preparing in your own notebook ok.

Now, based on this information, are you able to prepare a budget. As I told you we will be starting with the sales. So, we know that budgeted sales are 500. We also know the opening stock.

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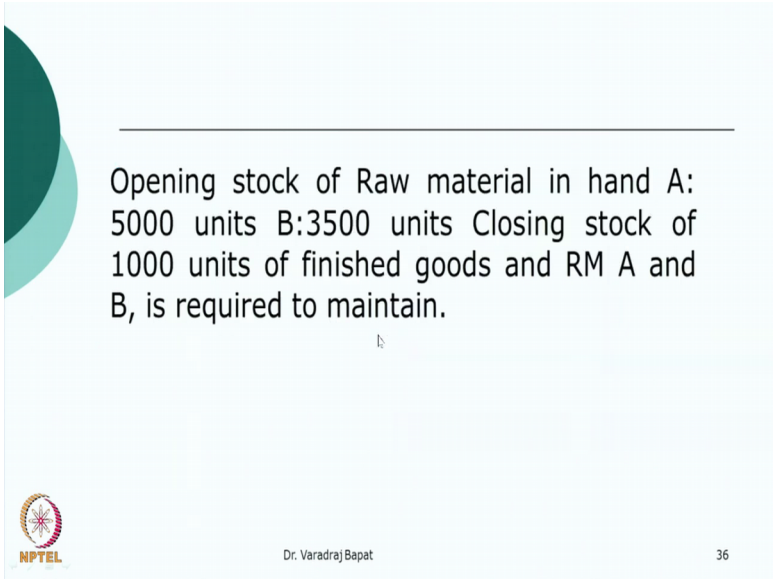

Little more information is given about stock that the opening stock of raw material is 5000 units and 3500 units respectively for A and B and we need to maintain closing stock of 1000.

So, we now know opening stock. We also know closing stock of finished goods. So, first of all let us make production budget ok. Let us try orally, it is very simple. We need to have 500 units for selling, we already sorry 5000 units for sale. We already have 500 and we need to have a closing stock of 1000 of finished goods right. So, how many units we need to prepare or manufacture? So, 5000 minus 500 because they are already ready plus 1000. So, production requirement will be 5500. I hope you are getting, I can show you the solution, but try to do it mentally.

Now, based on this production requirement of 5500 units, look at the consumption of A and B and based on that let us go for raw material requirement and then raw material purchase ok. I will show you the solution now.

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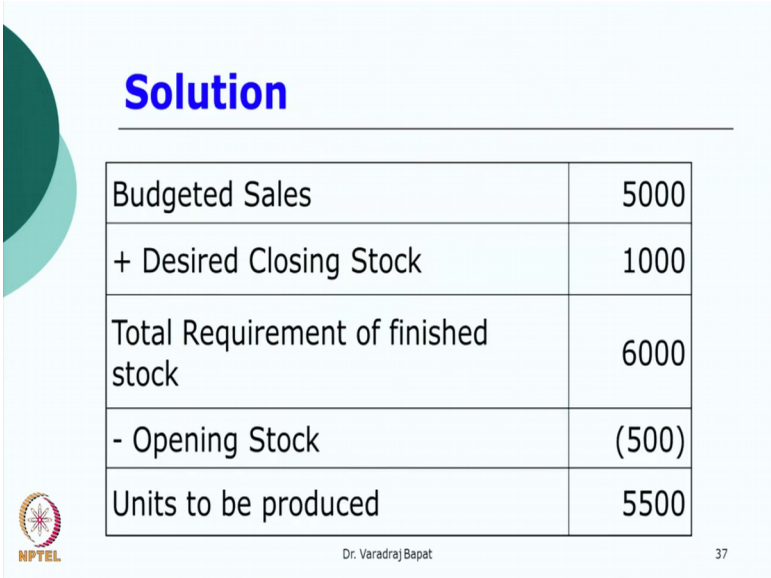

So, budgeted sales are 5000, desired closing stock 1000; that means, total requirement of finished goods is 6000 minus opening stock because those 500 units are already there; that means, units to be produced or you can call it a production unit budget is 5500.

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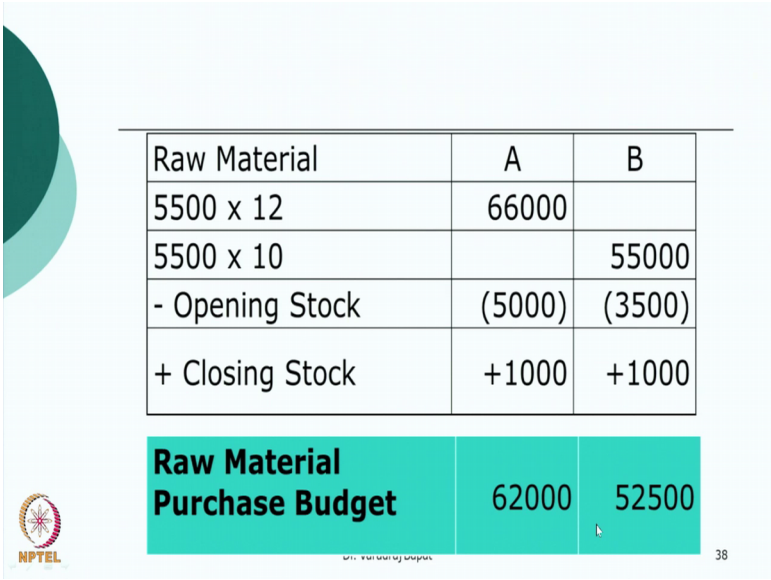

Now, based on this, we have worked out the raw material consumption. Now, it was given that raw material required of A and B is 12 and 10 respectively for 1 unit of finished goods. So, for 5500 units into 12 and into 10. So, A units of raw material are 66000 and B are 55000 ok. There is already opening stock of 5000 and 3500 which we

will reduce. We will add the closing stock which we need to maintain. So, we get raw material purchase budget of 62000 and 52500 in terms of units. Are you getting me?

Now, this is a raw material purchase budget in units. If they give you prices of raw material, we can multiplied and get it in terms of rupees as well, but as of now only this much is given; so, this is our solution. I hope you are clear about it. Ok. Now let us go to the case which has been distributed to you. As usual please take a printout set with the printout and then, we will try to solve the next case ok.

So, you are ready with it.

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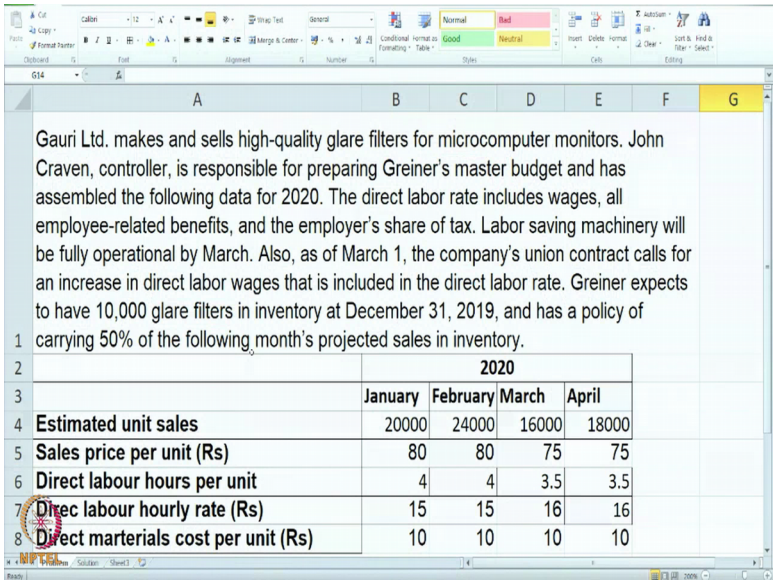

Gauri Ltd. makes and sells high-quality glare filters for microcomputer monitors. John Craven, controller, is responsible for preparing Greiner's master budget and has assembled the following data for 2020. The direct labor rate includes wages, all employee-related benefits, and the employer's share of tax. Labor saving machinery will be fully operational by March. Also, as of March 1, the company's union contract calls for an increase in direct labor wages that is included in the direct labor rate. Greiner expects to have 10,000 glare filters in inventory at December 31, 2019, and has a policy of carrying 50% of the following month's projected sales in inventory.

	2020			
	January	February	March	April
Estimated unit sales	20000	24000	16000	18000
Sales price per unit (Rs)	80	80	75	75
Direct labour hours per unit	4	4	3.5	3.5
Direc labour hourly rate (Rs)	15	15	16	16
Direct marterials cost per unit (Rs)	10	10	10	10

Fine, please read it carefully. Gauri limited makes and sells high quality glare filters for microcomputer monitors. Now, John Craven, the controller is responsible for preparing. This should be Gauri; Gauri's master budget and has assembled the following data for 2020. Then, they have given some data about labour cost and other things. Now this Gauri expects to have 1000 glare filters in the inventory at December 31st 2019 and has a policy of carrying 50 percent of following month's projected sales in inventory, fine.

So, we know the opening stock and we also know the policy for maintaining the closing stock. Now, they have given the data about the next one month's projected sales as well as sale prices, direct labour hours and so on, fine.

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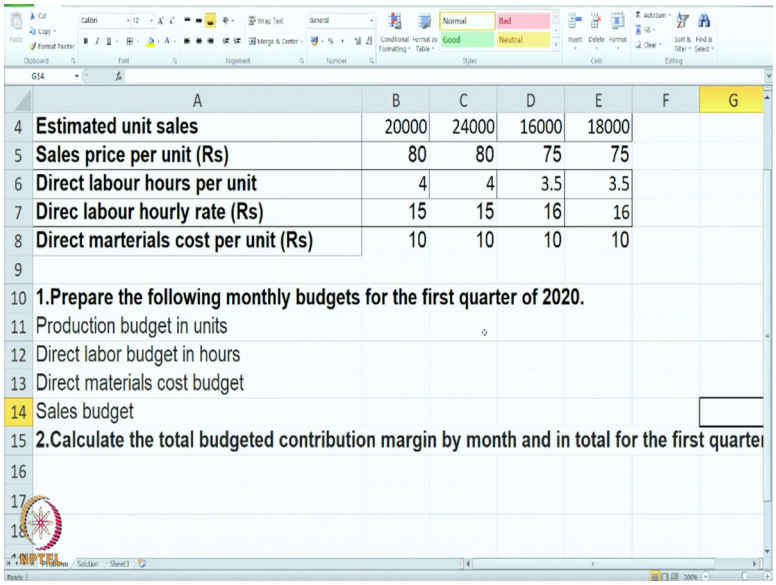

	A	B	C	D	E	F	G
4	**Estimated unit sales**	20000	24000	16000	18000		
5	**Sales price per unit (Rs)**	80	80	75	75		
6	**Direct labour hours per unit**	4	4	3.5	3.5		
7	**Direc labour hourly rate (Rs)**	15	15	16	16		
8	**Direct marterials cost per unit (Rs)**	10	10	10	10		
9							
10	**1.Prepare the following monthly budgets for the first quarter of 2020.**						
11	Production budget in units						
12	Direct labor budget in hours						
13	Direct materials cost budget						
14	Sales budget						
15	**2.Calculate the total budgeted contribution margin by month and in total for the first quarte**						
16							
17							
18							

Based on this we need to prepare monthly budget for the first quarter 2020. So, all these budgets are required. Production units budget, then direct labour budget, direct material cost budget and the sale budget, fine. Further, we are also to make some calculation about budgeted contribution margin for each of these months fine ok.

Now, how shall we proceed, think over a bit. As I have told you it is totally based on sales first of all. Based on sales and based on the estimation of stock, we will have to calculate the production budget in terms of units. So, based on the sale, we go for production. Then, based on production compute the because they have given the labour requirement and the direct material requirement based on that compute the direct labour and direct material and in the end we will go for calculation of contribution margin. Fine, I hope you are able to do with me.

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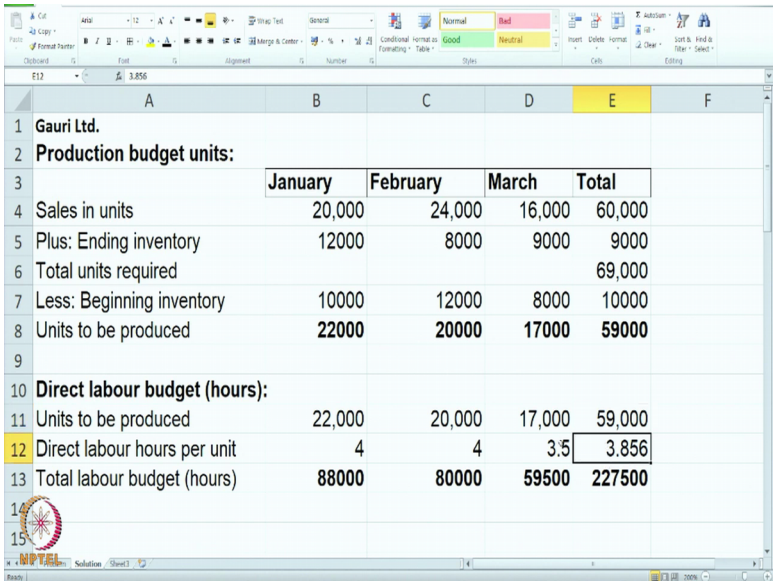

	A	B	C	D	E	F
1	**Gauri Ltd.**					
2	**Production budget units:**					
3		**January**	**February**	**March**	**Total**	
4	Sales in units	20,000	24,000	16,000	60,000	
5	Plus: Ending inventory	12000	8000	9000	9000	
6	Total units required				69,000	
7	Less: Beginning inventory	10000	12000	8000	10000	
8	Units to be produced	**22000**	**20000**	**17000**	**59000**	
9						
10	**Direct labour budget (hours):**					
11	Units to be produced	22,000	20,000	17,000	59,000	
12	Direct labour hours per unit	4	4	3.5	3.856	
13	Total labour budget (hours)	**88000**	**80000**	**59500**	**227500**	
14						
15						

Now, this is the structure. Firstly, starting with the sales, try to compute the production budget in terms of units. First quarter, so will be making only for Jan, Feb and March; the data for April which is given over here is not as such required, but it will be required for inventory purposes.

Now, to the sales, you add the closing or the ending inventory. So, you will come to know the total units required. To that you need to reduce the opening inventory which will give you the units to be produced, that is nothing but your production budget ok. Now, compute the ending inventory for January, it is 12000. How did you get 12000? We will go back of it if you are not if you donot remember it. Here it was given that the policy is of carrying 50 percent of following months projected sales.

So, we know that the sales of February are 24000 so, 50 percent of that should be ready in the January. Got it? Because company does not want any disturbance in their delivery schedules. So, half of the next month sales are produced in the current month and kept in the inventory.

Now, what will be the closing inventory for February? Half of 16000 right? Now, we will need the inventory of April, I mean sale of April which is 18; based on that, compute the inventory for March. So, it is 9. Are you getting me? So, this is the closing inventory. Now what is a opening inventory? It was already given that there have 10000 units of opening inventory, got it; now, how much are the units to be produced? They are 22000.

So, 20 plus 12 means 32 minus 10, you get 22. Are you getting? This is how production units budget is produced. In almost every problem, it will start from sales, then go to production and then, we will go to each of the inputs like material, labour and so on.

So, now please prepare it for February also. How much budget you are getting for Feb? Now, 12000 is a opening inventory because last times closing will become opening and if you take 12, the units to be produced are 20. Same way for March, the opening inventory is this that is 8000 and based on 8000, the units produced are 17000.

Now, we have come close it for the quarter. For the quarter the ending inventory is the March inventory that is 9000. Opening is a January inventory which is 10000. That means, during the quarter the total production is 59. You can cross check if both the sides 60 plus 9 minus 10 also you get that and if you take total of Jan, Feb and March also you will get 59. This is what is a production units budget; are you getting it?

Now, based on this please go to labour cost now. Prepare direct labour budget firstly, in hours and then, in rupees. So, if you go to case again, they have given as the direct labour required per unit which is 4, 4 and 3.5. They have also given as direct labour hourly rate. Using this data let us prepare direct labour cost budget ok.

Now, compute the direct labour hours per unit. So, they have given 22000 are the units produced, we have calculated. 4 is given that is direct labour hour per unit. Based on this data 22 into 8; that means, 88000 are the total labour hour required for January; fine. Same way what will be the figure for February? It is simple you would already know that we have to produce 20000 units at 4; that means, for the month of February, the direct labour hours required are 80000. How many for March? It is 17, now the rate has changed 3.5 so, 59500.

You can take the total for all the 3 months that is the quarter, 59 and the total is 227500. Here, the labour hour rate is taken as a weighted average which is 3.856. Getting it? 227500 upon 59000, you will get the weighted average rate for the quarter.

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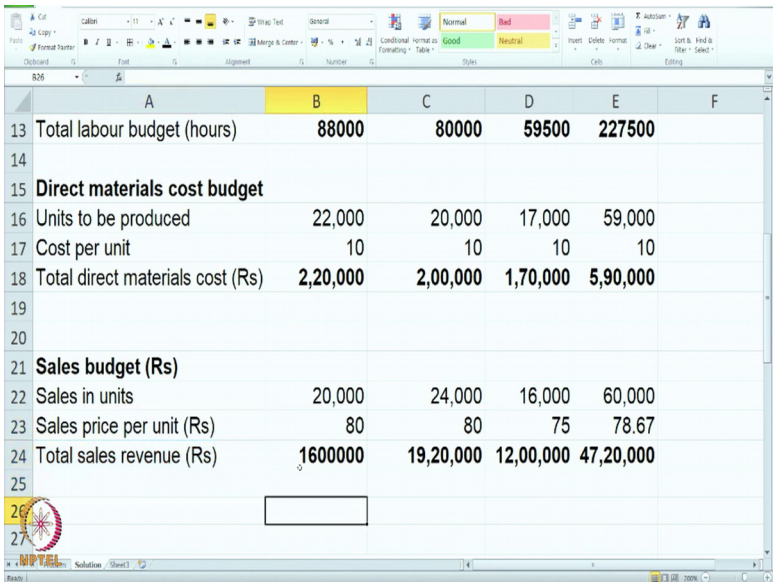

	A	B	C	D	E	F
13	Total labour budget (hours)	**88000**	**80000**	**59500**	**227500**	
14						
15	**Direct materials cost budget**					
16	Units to be produced	22,000	20,000	17,000	59,000	
17	Cost per unit	10	10	10	10	
18	Total direct materials cost (Rs)	**2,20,000**	**2,00,000**	**1,70,000**	**5,90,000**	
19						
20						
21	**Sales budget (Rs)**					
22	Sales in units	20,000	24,000	16,000	60,000	
23	Sales price per unit (Rs)	80	80	75	78.67	
24	Total sales revenue (Rs)	**1600000**	**19,20,000**	**12,00,000**	**47,20,000**	
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Now, same way try to prepare direct material cost budget. So, again start with the production units, take the unit cost, you will get the direct material cost budget. It is very simple 22 into 10. So, you get 220000. I hope you can pick it now for other months. 20 into 10 and 17 into 10 so, 200000 and 170 and then, for the whole quarter 59,000 into 10 590000. The cost per unit is same whereas, in labour it had fallen hourly rate, fine.

Now, what else you are required to calculate? They have also asked us to calculate the sales budget. We already are aware about sale units so, we have taken the sale units and take multiplied by the selling price. They have given here the selling price which is 80, 80 and 75. So, multiplied by selling price, you will get the total sales. Are you able to get it with me? So, 1600000; 1920000; 1200000; 4720000. Now, this is the total sales revenue projected which will be given in the sales budget; fine.

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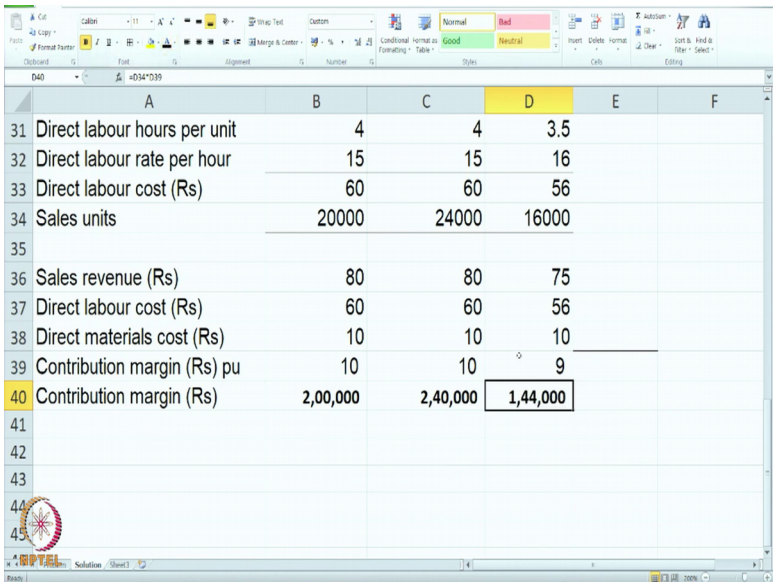

	A	B	C	D	E	F
31	Direct labour hours per unit	4	4	3.5		
32	Direct labour rate per hour	15	15	16		
33	Direct labour cost (Rs)	60	60	56		
34	Sales units	20000	24000	16000		
35						
36	Sales revenue (Rs)	80	80	75		
37	Direct labour cost (Rs)	60	60	56		
38	Direct materials cost (Rs)	10	10	10		
39	Contribution margin (Rs) pu	10	10	9		
40	Contribution margin (Rs)	2,00,000	2,40,000	1,44,000		
41						
42						
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Now, in the B part of the case we have been asked to compute the budgeted contribution margin. So, we know all the data; we know sales, we know the variable cost like material and labour so, compute the contribution. I hope you remember the structure, take the labour cost, material cost per unit sales and then, based on that you will be able to compute the margin. How much is the sale price per unit? In the first quarter, it is 80 minus labour cost which is 60.

Now, how will you get the 60? Because it is 4 labour hours per unit and the rate for labour is 15. So, just check the data for January; direct labour hours per unit is 4 labour rate is 15. Now, those labour rate was given here that direct labour hourly rate is 15. So, 4 into 15; that means, direct labour cost is 60. Unit sale units are already given which is 20000. Sale revenue or selling price per unit is 80, labour cost is 60 as per calculation, material cost was already given rupees 10, are you getting it? So, how much is a contribution margin now? 80 minus 60 minus 10. So, contribution margin is 10 per unit.

Now, also get the total margin. So, 20000 units into 10; that means, 200000 is the total contribution generated. Since, we are in the budgeting company would expect you to calculate total as well. When we are solving a marginal costing or a CVP case or a problem, we normally go back per unit. Here also you can go back per unit, but then multiplied by total. Are you getting me? So, 200000.

Now, same way try to do it Feb. How much is the direct labour hour rate? If we go here you can see that the hour rate is same direct labour, direct labour hour per unit is 4 and hourly rate is 15. So, direct labour cost is same which is 20000 and number of units to be produced are 20000, 60 is a direct labour cost and sale units are 24000. I am sorry donot take production this is a contribution; so, it is based on sales and sales are 24, so, take 24. How much is a margin per unit? Actually all the data is same 80 minus 60 minus 10. So, per unit is 10; 24000 into 10.

So, 240000 is a contribution margin for February. Now, for the month of March; is there any change? Answer is yes, there is a change you can see here, the direct labour hours per unit have actually gone down to 3.5. Now is it a good sign? Yes, efficiency as improved. Earlier they were taking 4 hours for 1 unit, now they are doing it bit faster that is 3.5 per unit multiplied by 16 because their rate has increased, they have given 1 rupee extra to workers.

So, we will do this calculation here; see 3.5 into 16, labour cost has actually gone down from 60 to 56. So, workers are getting more pay, but for the company the cost has gone down because of better efficiency. Sale units are actually less they are only 16000. You can see here the contribution margin has also shrunk that is mainly because the price has gone down from 80 to 75; labour cost is slightly controlled in a better manner. So, it is 56 material cost is same. So, contribution margin is 9, 16000 into 9 that will be the total margin which is 144000, are you getting it?

So, here we were asked to prepare 4 budgets and also compute the budgeted contribution margin. So, I think it will be clear to you; all these things have been calculated. I am just add the heading here fine. So, we will stop here. In the next session, we are going to solve a case on preparation of cash budget. So, I will request you to revise the cash budget. Because it is a little longish case and we will try to solve it. With this, we will stop, [FL], [FL].