Management Accounting
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Lecture-56
Applications of ABC –II

Welcome all. We are learning about the difference between Total Costing and Activity based Costing and in the previous class I did a (a) small case and in that case we found out that see, the difference in the two cost are there and when you find out that difference we have seen that earlier the cost of this company, the product was how much? That cost was, say, 5 rupees, right?

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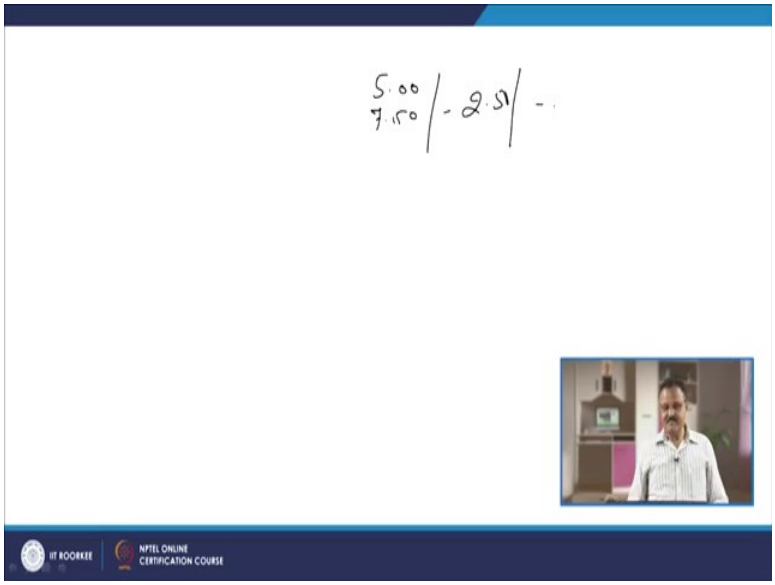

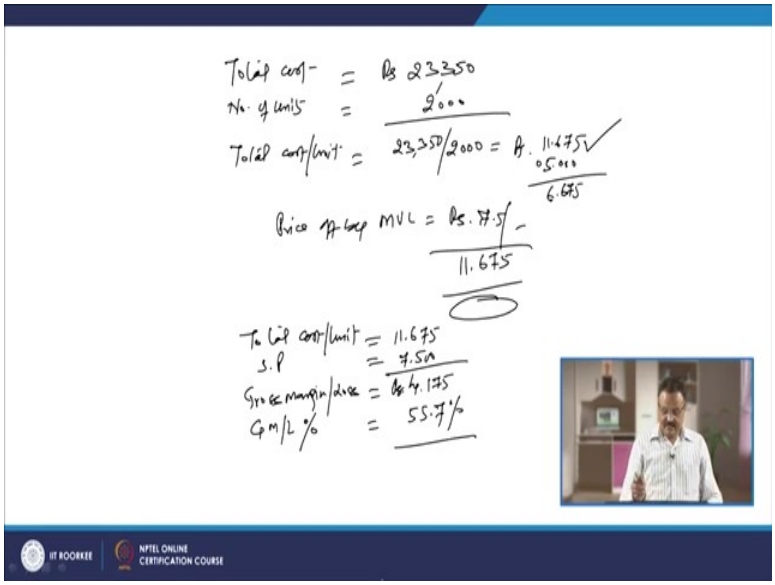

And now this cost is, this is a 5 rupees cost and we are selling the product at 7.5 so we are feeling that we are having a profit of 2 rupees and 50 paisa per unit. But actually what is the total cost of this product now? When we have calculated the total coast of this product, we have found out that the total cost is 11.675. So, I was telling you the problem of the over costing and the under costing, this product is basically under costed.

This product is basically under costed, so if it is under costed, how can you actually price it. It is not coming into picture, because when we are calculating the total, say preparing the total loss and profit account as a consolidated statement of the company then these things are not coming on the surface, but when you, or you, when you prepare even the cost sheet; when you have prepared the cost sheet, already the cost sheet is there in this problem.

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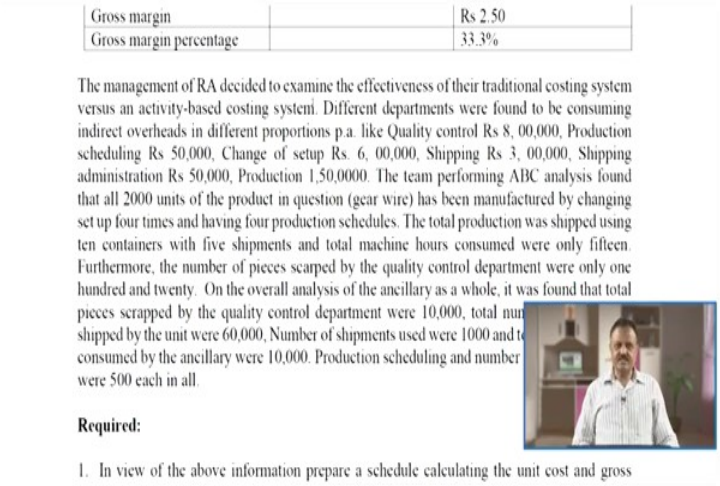

Gross margin		Rs 2.50
Gross margin percentage		33.3%

The management of RA decided to examine the effectiveness of their traditional costing system versus an activity-based costing system. Different departments were found to be consuming indirect overheads in different proportions p.a. like Quality control Rs 8, 00,000, Production scheduling Rs 50,000, Change of setup Rs. 6, 00,000, Shipping Rs 3, 00,000, Shipping administration Rs 50,000, Production 1,50,0000. The team performing ABC analysis found that all 2000 units of the product in question (gear wire) has been manufactured by changing set up four times and having four production schedules. The total production was shipped using ten containers with five shipments and total machine hours consumed were only fifteen. Furthermore, the number of pieces scarped by the quality control department were only one hundred and twenty. On the overall analysis of the ancillary as a whole, it was found that total pieces scrapped by the quality control department were 10,000, total nu
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were 500 each in all.

Required:

1. In view of the above information prepare a schedule calculating the unit cost and gross

labor cost. This rate is based on the Rs 33,00,000 annual factory overheads divided by Rs 825000 annual direct labor costs. To produce 2,000 units of the product requires Rs 5000 of direct materials and Rs 1000 of direct labor. The unit cost and gross margin percentage for the gear wire based on traditional costing system are computed as follows:

Particulars	Total	Per Unit
Direct materials	Rs 5000	Rs 2.50
Direct labor	1000	0.50
Indirect manufacturing overheads (400% of D.L.)	4000	2.00
Total cost	10,000	Rs 5.00
Sales price quoted		Rs 7.50
Gross margin		Rs 2.50
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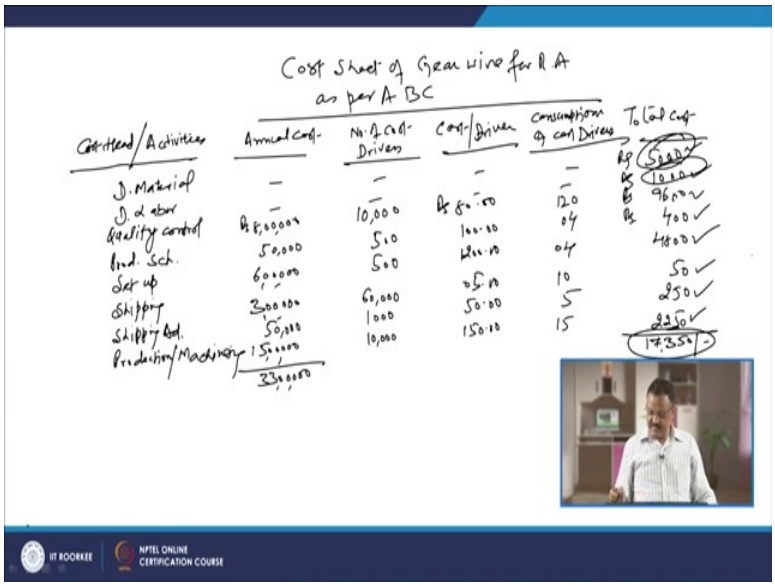
that all 2000 units of the product in question (gear wire) has been manufactured by changing



If you see the cost sheet here, the cost sheet is saying that this product's cost is 5 rupees because here the method of allocating the cost is defective. When you are allocating the cost here, this method is defective, you are taking direct material coast, fine; you are taking direct labour cost, fine; but when you are allocating overhead cost simply as 400 percent of the direct labour, that way we are creating a problem and only 2 rupees you are adding here.

Only 2 rupees you are adding here per unit and how much overhead you are adding here, 4000 rupees. But what is the actual amount of the overheads in this case? The total amount of overheads in this case we have worked out in this statement is 17350 rupees. How much we were adding, 4000 rupees. This statement if you look at, this overhead cost is 4000 rupees and per unit it is 2 rupees.

This cost, per unit if you calculate, it is coming as 2 rupees, but if you talk about this amount here, this amount is working out as 17,350 and if divide it by, say, you can call it a, if you divide it by total amount of that is, 2000 units; this amount is more than 8 rupees per unit so it means where is the defect? The defect is in the costing system, the absorption costing system is not as good as the ABC but only thing is, that is very, very complicated system.

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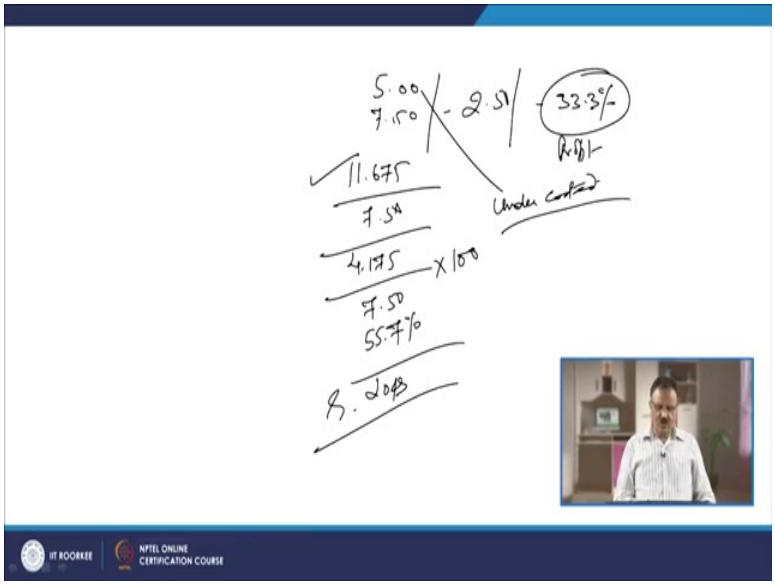

So, when you have calculated the profit here, in this case say, when you are calculating the profit, we have found out here is that our cost is 7 rupees, our cost is 5 rupees, our selling price is 7.5 rupees, our gross margin is 2.5 rupees. So, we are ultimately in the state of 33.3 percent profit. 33.3 percent profit but in the real sense if you look at, you can find out here is that under the ABC your cost is this much, you are selling the product at this much, so what is the situation?

You are in the state of loss and that the loss is how much? 4.175. And if you take it as a percentage of 7.5, this amount will work out as, this amount will work out as 55.7 percent as loss. So, under the total costing system, we are in the 33.3 percent of the profit, here when we are calculating as per this, we are in the state of loss; Gross Loss, so it means now where lays the problem. Which system is the more accurate system?

Whether the absorption costing system or the activity based costing system? The absorption based costing system says we are in the profit; activity based system says we are in the state of loss. So, the correct system is, the correct way of allocating correct overheads is, that is by

distributing is as per the conjunction of the overheads by the different products and then adding up the cost into it.

That is much better as compared to the total costing system, taking it as the 400 percent of the direct labour that is a defective system. Because of that, this product under costed, the problem of this product is under costed because when you are saying it is 5 rupees, this is under costed. It is not over costed, it is (no), it is under costed, and when it is under costed, it means you are selling this product to the market at a loss.

You are selling this product to the Maruti at a loss, it may be possible. We are not able to find out that when you are preparing the total, say, the statement of the cost for all the products. But when you are preparing the cost sheet, by following the absorption costing system, then you are finding that yes, we are in the state of profit. But actually the total amount of indirect cost, fixed overheads this product is consuming that is very-very high.

Out of the total 33,00,000 which were incurred for the firm as a whole for all the products, that is very, very high. So, it means, here lies the defect. We have very clearly seen that when we calculate the cost as the total cost system and when you calculate the cost as per the absorption costing system you have seen, a profit making product under the total costing system, as under, under the absorption, activity based costing system and the reason is that the allocation of the direct material cost is not a problem because it is directly allocatable.

Allocation of the direct labour cost is not a problem, it is directly allocatable. So, I told you in the beginning, allocation of the variable direct cost to different products is not an issue, is not a problem but allocation of the fixed cost is a problem. So, that defect which we have seen here, we are taking only simply how much cost we are showing in that? We would totally showing the cost here in this case, only.

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825000 annual direct labor costs. To produce 2,000 units of the product requires Rs 5000 of direct materials and Rs 1000 of direct labor. The unit cost and gross margin percentage for the gear wire based on traditional costing system are computed as follows:

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What is the fixed overhead cost? Indirect cost is 2 rupees so we are saying 2.5 is the material cost, 50 paisa is the labour cost, 2 rupees is the overhead cost and finally your total cost of production is 5 rupees.

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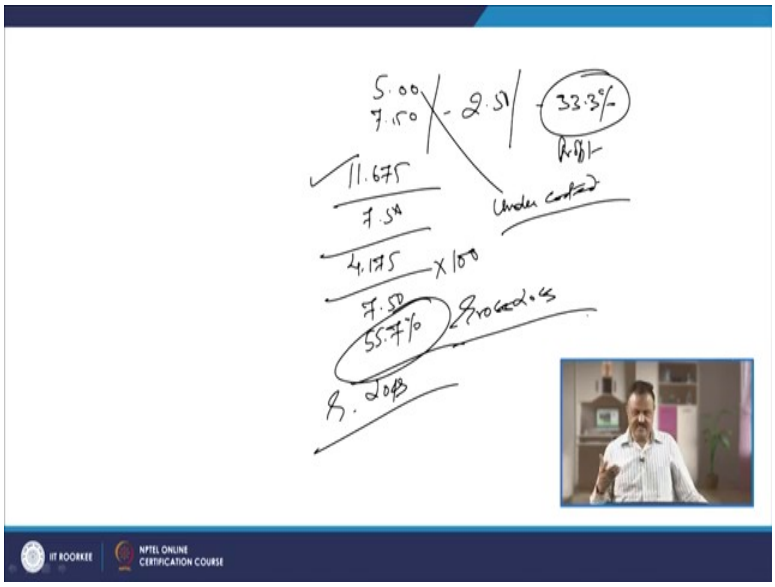

So that defect which we have now caught, we will try to find out is under ABC and we are finding out here is that a state of profit has been converted into the gross loss. This is the gross loss and firm is selling the product to Maruti Udyog Limited at a loss of 55.7 percent means a product which is costing us 11.675 we are selling this product at 7.5 rupees to Maruti

and we are very happy that we are in the state of profit. So, first answer to this question is, we should reject the offer of Maruti to go for expansion of this project until and unless they increase the price.

We should redo the whole pricing system, we should discuss with the buyer; Maruti Udyog Limited, Reliance Industries; they must discuss this problem with the Maruti Udyog and they must tell them we are unable to sell you at 7.5 rupees because our own cost of production is 11.675 rupees so it means that if you want to jack up the price, you should at least pay us 12 rupees. It means in that case they have to pay us 4 rupees and 50 paisa more as compared to the present one.

And if you jack up the price to 12 rupees then it is fine, but if you do not jack up the price then we are not able to sell you at this price or we are not able to increase the production, so, it means the decisions has to be reconsidered and reviewed because the actual cost is different, selling price is different, product is under costed, product is, means certainly if the costing system is defective, pricing is defective so it means the product is, the product is defectively priced.

And what is happening? It is not coming in the surface, this loss is not coming on the surface because we are not able to find out product wise product, or maybe the, as per the actual consumption of indirect cost by the different products but now that we have converted that total cost sheet into the ABC cost sheet, we have found out the real difference is coming up and we have to take a decision to discuss this problem with Maruti and tell the company, to tell the Maruti that we are not able to sell this for this much of price.

Either you have to raise the price or we have to think something about it or we have to look another buyer for us because our costing system is different. So this answer to the first question and this is a clear cut difference, in the previous classes when discussed with you the conceptual part of ABC that what is the ABC activity based costing total organisation means we have three components. One is the total indirect dost, direct cost is no problem , indirect cost you have to take in account, in this case the indirect cost is 33,00,000, right.

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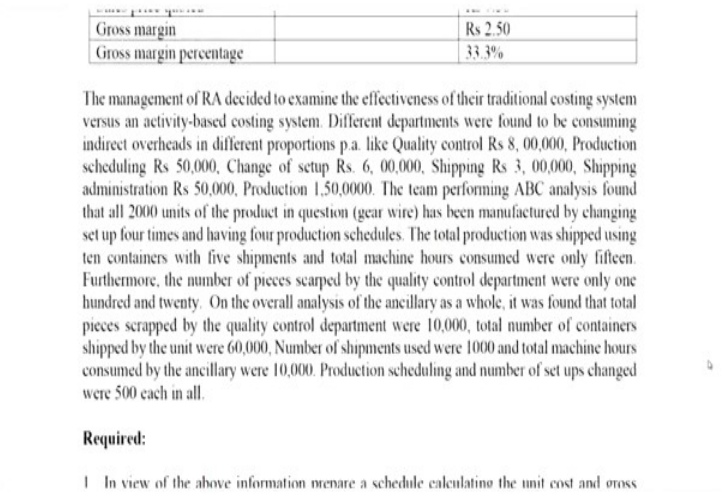

Gross margin		Rs 2.50
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Required:

1. In view of the above information prepare a schedule calculating the unit cost and gross

Then we have to find out that how that 33,00,000 cost is apportioned , distributed to the different activities as in the case as you have seen here that it is distributed to 8,00,000 for the quality control, production scheduling is 50,000 rupees, change of setup cost is 6,00,000 rupees, shipping cost is 3,00,000 rupees, shipping administration is 50,000 rupees and machining cost is 15,00,000 rupees, right.

So, total cost works out as 33,00,000 rupees and total number of drivers we had to find it out, so when we found out the total number of drivers here, we have found out here the total product is found scraped, the total number drivers is the 10,000 rupees, so 10,000 products. Then you talk about that the total say the production done and we are changing up here, we have seen here that the cost driver for this was the last one production scheduling and number of setups changed.

Total is 500 times you have changed the setups for manufacturing the products. So this we have taken the total number of the drivers, therefore, 500 are not for this product only. In total we are talking about. Then the, again the setup is changed for the 500 times, so the set up driver will also remain the same. In this case when we talk about the shipping cost, shipping is total is the total amount of the shipping we have taken here is this, this information is given here, yes that is the case, total numbers of containers shipped be the unit were 60,000.

Total number of containers shifted or shift were, that total number of containers shift were 60,000 total containers. So, this is the total number of drivers but for all the products not for

this. Simply the shipments, how many shipments are done, shipments done are 1,000. Given this information to us here, shipments done are 1000, so 1,000 shipments we have done and total products shipped are 60,000, so it means total number of drivers are available with us and finally the machine hours.

When you talk about the machine hours, there are 10,000 machine hours so it means here it is given total machine hours consumed by the ancillary were 10,000. So these are total number of the drivers consumed by the different activities in the company as a whole, in the firm as a whole. Now much means you are given the total activity cost for example in case of the qualities, 8,00,000. Number of say total products scrapped or checked or scrapped are 10,00,000; 10,000. So per unit cost you have calculated.

When the per unit cost is calculated, in this case in, in this product's case the total number of products scrapped are 120 so only that much cost should apportioned to this product cost sheet, nowhere else so it is 120 and then we have calculated cost of the quality control or quality check is 9,600 only. The highest cost which has come up here is, that is for the change of the setups, means after this quality control, the second highest is the change of setups, that is 4,800 and machine hours per machine hour cost when we have calculated, that is the third largest 2,250 rupees, so this way if you calculate, means you have to find out first of all what is indirect cost, in this case 33,00,000.

The number of activities being performed, you have to identify, number of the total drivers, you have to identify then calculate the per driver cost that is the next step. After that, you have to find out that the product which is in question, how many numbers or the hours of the product, this cost drivers is consuming so we have to take that and then we have to calculate the, multiply by the number of say, this per unit cost, per driver cost.

Number of drivers consumed by this product only that with the total indirect cost has to be calculated and adding up that indirect cost with direct cost as in this case we have done is that was 5,000 is the material cost, 1,000 was the labour cost, total cost we had to work out and we worked out that cost by following some system.

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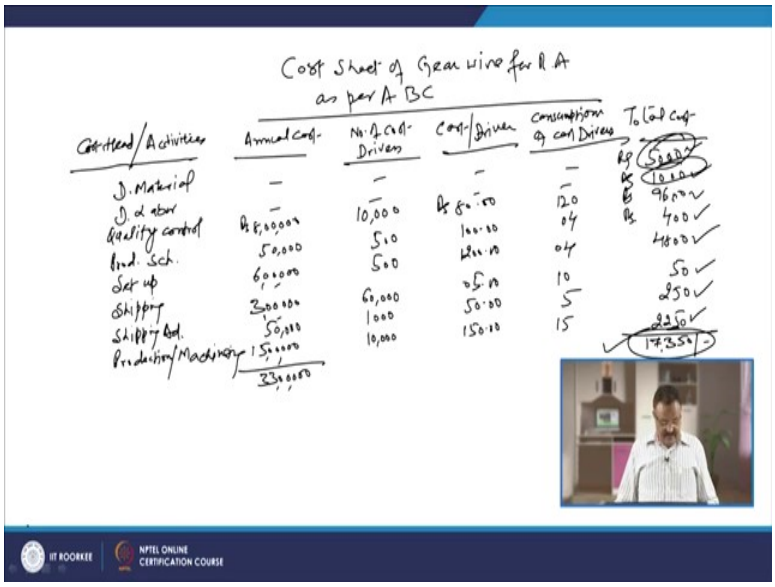

So we have seen here, that this cost came up as a total cost which came up to us was, that is the, say, 17,350. That is the only indirect cost. 17,350 indirect cost material cost is 5,000 and the labour cost is 1,000.

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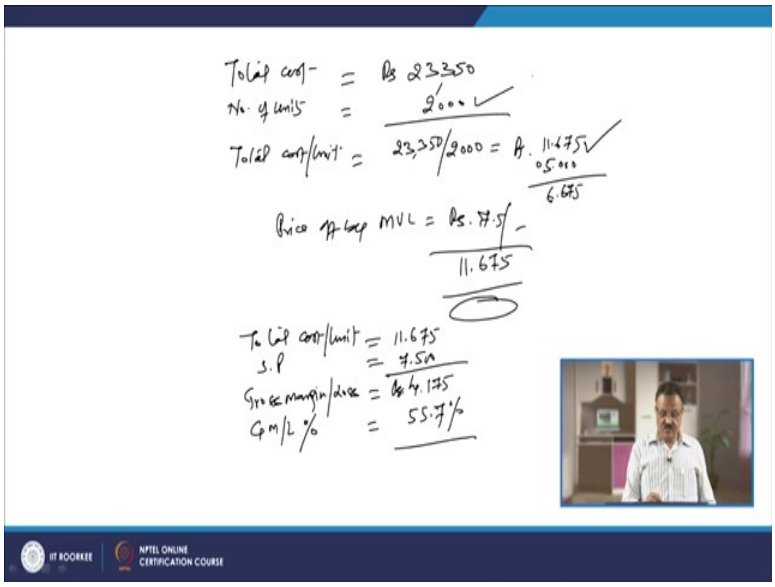

So, the total cost which we calculated here was that is 23,350 and how many units we are manufacturing, 2000 units we are manufacturing. So cost, total cost per unit worked out as 11.675 and now old cost was that is 6.675. It means you are not selling the product, means the earlier cost when we have calculated the total costing system.

And now the cost we have calculated is this ABC cost is even more than the double of the cost calculated as per the total costing system or the absorption costing system, right. So, it means, and when you are comparing it this cost 11.675 with the selling price, so this, means selling price 7.5 hour cost, exact cost is 11.675.

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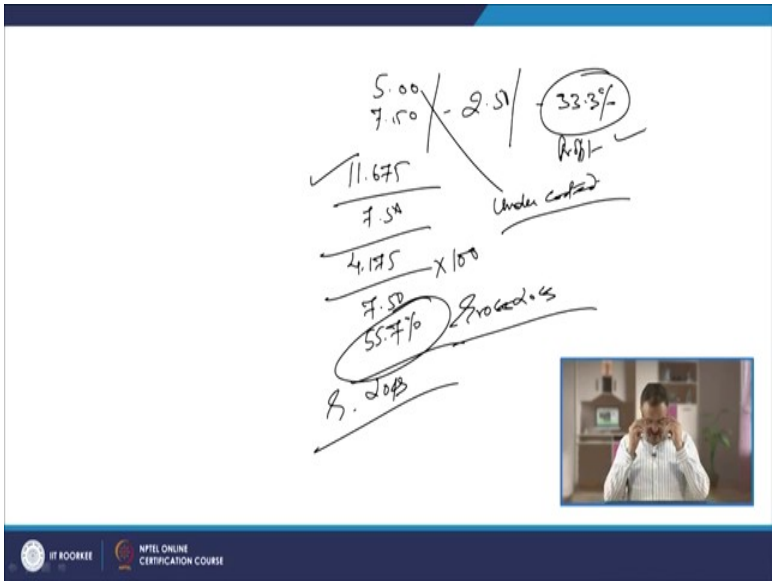

So, we have seen the difference that rather than earning a profit our gross margin of 33.3 percent. We are in the state of loss and the loss is more than the profit and that is 55.7 percent or almost 67 percent of the gross loss is there. So this loss has occurred just because of the problem of the under costing of the product, this hereby, this product is under costed and when the product is under costed.

How can you price it and ultimately, say our profit making product, we are selling at loss and ultimately means this product is eating up on the profit of other products but that picture is not coming on the surface because the total profit and loss account you are preparing is that is the consolidated statement and when once it is the consolidated statement, you are not able to find out product price cost sheet.

When we you preparing and that too on the total costing system, even by preparing the product wise, the total cost is not reflected there and when you calculate this cost as per the ABC, actually cost is reflected product wise. So, if you do it for all the products in this firm, if this, for example, they are manufacturing all the products; 10,000 units are scrapped, it means how many units they are manufacturing? 33,00,000 is the indirect cost.

So, if they, means check and redo the whole thing, the problem of over costing and under costing will be solved; actual pricing will come on the surface and maybe, it is a possibility that many products are like this, which are loss making in the present case, can be converted into the profit making products and overall profitability and performance of the company can be improved, right?

So this is the difference I could explain it to you, with the help of this case and you can understand what is the defect in the total costing system and how these two systems are different as far as costing of the different products are concerned. Now, we are asked some other questions here, what are these other questions?

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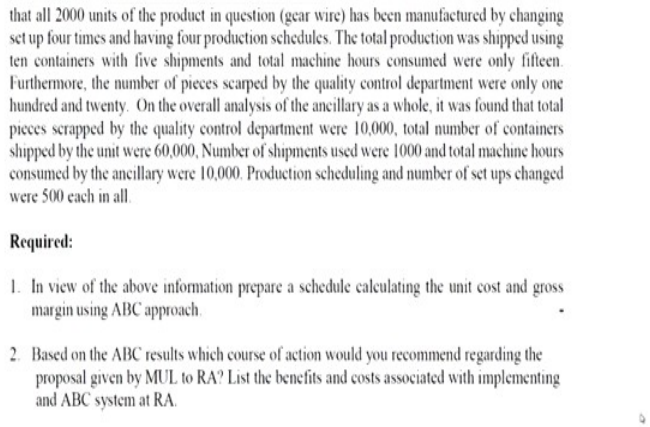

that all 2000 units of the product in question (gear wire) has been manufactured by changing set up four times and having four production schedules. The total production was shipped using ten containers with five shipments and total machine hours consumed were only fifteen. Furthermore, the number of pieces scarped by the quality control department were only one hundred and twenty. On the overall analysis of the ancillary as a whole, it was found that total pieces scrapped by the quality control department were 10,000, total number of containers shipped by the unit were 60,000, Number of shipments used were 1000 and total machine hours consumed by the ancillary were 10,000. Production scheduling and number of set ups changed were 500 each in all.

Required:

1. In view of the above information prepare a schedule calculating the unit cost and gross margin using ABC approach.
2. Based on the ABC results which course of action would you recommend regarding the proposal given by MUL to RA? List the benefits and costs associated with implementing and ABC system at RA.

The other questions shared are “In view of the other information, prepare a schedule calculating the unit cost and the gross margin using ABC approach.” We have done that right? We have calculated the unit cost and the gross margin following the ABC approach that we have done. “Based on the ABC results which course of action would you recommend regarding the proposal given by MUL to RA?”

Reject the proposal, we have to reject the proposal because MUL is, is, is offering the price 7.5 rupees; our cost is more than that, 11 point something, 11.675. So we are not able to sell them at 7.5 rupees. Either they have to jack up the price to 12 rupees minimum or we have not to sell it to them, so we have to reject their offer.

And the last point here in this case is, "List the benefits and costs associated with implementing the ABC." So, when you talk about the benefits of this costing system, we try to find out the benefits of this costing system. First benefit is this system is more accurate, this system is more accurate, more accurate pricing will be possible to be done.

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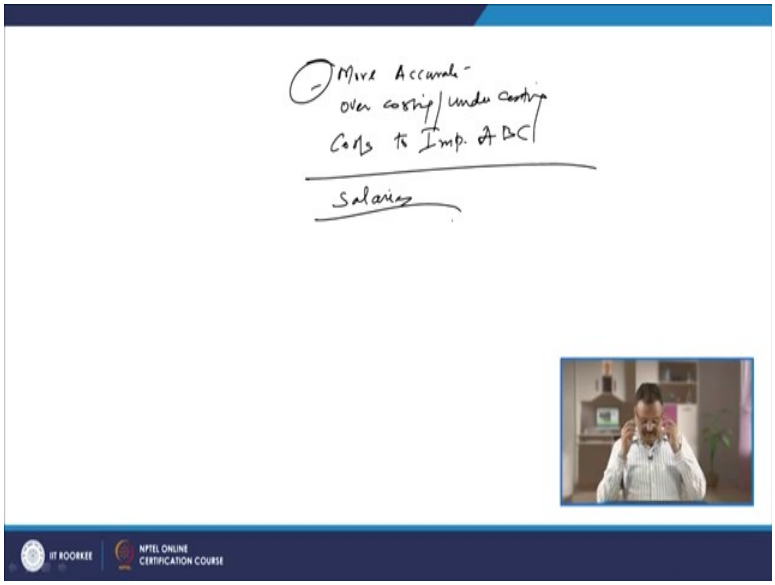

So this is the first benefit of this system, it is more accurate as compared to the total costing system, so first benefit is there. And the second thing is there that it helps to solve the problem of over costing/under costing because it is most, you can call it as effective system. It is the most useful system, more accurate system so problem of the over costing and under costing can be, can be removed and once you are implementing ABC in any organisation then what we doing is that our planning will improve, our operations will improve, our profitability will improve and our overall customer service will improve because profitability will go up.

So these are, the, some major benefits, actual major benefits is the accurate pricing, accurate costing and accurate pricing and overall impact upon the firm as a whole is very-very good and very-very positive, right? So this is the system, which we should implement and we should try to bring this system in the organisations so that we can, reap the benefits of the actual pricing or maybe the right pricing of the different products of the company or the manufacturing organisations.

This is not only required to be done or possible to be done in the manufacturing organisations. Even the services can also be rightly priced if they are rightly costed. So this system is applicable in both the cases, this (p) products also and the services also. In the manufacturing organisations also, in the service organisations also, we have seen the difference, how the difference occurs and how ABC system is much better, more accurate and more useful, right?

Now, last question we have to answer is what are the costs associated to implement the ABC. Cost to implement ABC. What are the different costs associated to implement ABC system, so if you talk about these costs, means it is very-very expensive system, it is not an easy system, it is very, very expensive system, so we have to find out the cost and why the firms are not finding it so easy.

First one is, the cost or the salaries of those employees who are into this system within the firm, the salaries of those employees, of those people who are responsible for creating or implementing the ABC in the firm because they are the permanent staff. Once you think of bringing this system into the place, then those people, a team of the people a costing division has to be created.

A permanent team of the people have to be employed for this purpose; their training, their retention and their upkeep cost is very high, so this is the one permanent head of the expense which is going to be there. Second is the cost of consultants, cost of consultants because every time it is not possible for the firms to find out this cost by themselves or to create this system in the firm by themselves.

As I told you in the previous classes that as far as the non living material is concerned, non living resources are concerned, allocating those costed sources, or resources to the cost is not a problem at all; that can easily be done. But the living resources, allocation of the cost of the living resources is a problem and living resources are like, say human beings.

I told you that, for example, say in our accounts department 10 people are working and these account department people are the permanent employees, their cost is fixed, their salaries are fixed and we are manufacturing say 4 products, so how much time are these people giving to product A, product B, product C and product D, finding out that time product wise and calculating the total number of hours and the distribution of total number of hours to different products is not an easy job.

So cost division and employees working there within the organisation, cost of the consultants hired for implementing the system in the company and the is the data collection cost because data collection cost in itself very-very typical job; data collection from non living resources and data collection from the living resources and then calculating the total cost is again a very cumbersome job. So means, we have to collect the data until unless you have the total information about the total resource as in this case is 33,00,000.

How much is quality control cost, how much is production run cost, how much is the set up cost, how much is the shipping cost, how much is the shipping administration cost; so head wise we have to find out. Then the have the total number of drivers, that how many total number of products are scrapped; they can change also, they can change total number of shipments, total number of, say, setups, total number of, say, your that is the production runs and then calculating the per driver cost; again it is complex.

And does not remain stable that keeps on changing also and then finding out the conjunction of the drivers by one particular product, that is the most tedious job. I am telling you account department people, 4 products we are manufacturing, 1 product is consuming how many hours of those people in that department that is a very-very important question. So the consumption of one particular product, consumption of the cost drivers, number of the cost drivers by one particular product is a very-very tedious job.

Once you are able to find out the total number of cost drivers and then the cost per driver and then to say, say consumption of the by the different products, by the respective products, you can find out, say, the indirect cost; allocation of the indirect of that particular product in that cost sheet of that product and the problem of simply allocating the overheads as a percentage of direct labour or direct material will be removed.

Once you are able to allocate that indirect cost to that system so it means entire data is with us and that data can be used for calculating the total cost so and after that is that when you are going for, say implementing the ABC system, the most difficult thing or the most expensive thing could be that apart from the ABC system which we are creating, the ABC costing system that we are creating, that is only for the internal control.

Finally, for the external reporting you have to create a different division who will prepare the product wise profit and loss accounts or the consolidated profit and loss account and balance sheet. So, you have to create two different costing divisions, one is the internal costing

division. If it is a simple total costing based, costing division it is very simple and say state pay, the simplest job to be done.

But when ABC has to be done, then internal people working, consultants are working, regular updation being done, date collection is being done; so the cost is there and the cost is more than the normal system. So, internal system will be different, external reporting division will be different, so two cost structures you have to create and that is sometimes very-very difficult.

And the last main difficulty is, that is say, keeping the system going on and communicating this, this system to the employees when they, means when old employees are transferred, new employees join the organisation; to understand the whole ABC system in the costing division by the new employees, sometimes it becomes a problem. So upkeep of that information and upkeep of that system again itself a challenging task but it means all these limitations, all these costs if you set aside, the overall benefits are very-very high and if you are able to accurately cost the products, you will be able to accurately price the products.

So, problem of over costing and under costing will be gone and we will be able to hit the bull's eye that whatever the price we want to fix up, that will be the actual price, based upon the actual cost plus margins so the right profit and the right profitability can be calculated. So, number 1 is, we have seen, how, what is the ABC conceptually. Number 2 is how to calculate the cost under ABC, per unit cost under ABC and how it is different from the total costing system.

Then we have seen that what are the benefits of implementing the ABC system and what are the costs and the difficulties associated to this system. So, means, you can understand that if we are able to do this system, we are able to solve many problems and the true profitability of the organisation can be found out. So, we should shift from the total or absorption costing system to the activity based costing system, the benefits is, or the benefits of this system are known to all of us.

But since it is very complex so many companies in India are not means, say, able to follow this system because understanding, implementing and upkeep of the system is somewhat cumbersome and expensive task. So, this is, because of the limited time available here, I have to discuss only one problem, but there are so many books, so many resources. The book that I have suggested to you that is Management Accounting by the C.T. Horn Green.

They have also discussed this concept very clearly, activity based system very clearly; you can refer to that book or any other book or you can search in the net that what is ABC, you can search some problems in the net that how the ABC can be, say, activity based system can be implemented; how the cost under this system can be calculated and how there are different from the total costing system.

But largely if you refer from the book which I have given to you in the course plan, that is the Management Accounting by the C. T. Horn Green and Stratton by Pearson Publication then the problem, your problem of learning about ABC further more detail will be resolved. So this is all about the activity based costing system; I will stop here and in the next classes or next 3 or 4 classes we will be learning about the another concept, that is the last concept in this subject.

That is the management control system MCS that how the management control system can be implemented? What are the different tools of implementing the management control and how that management control system helps in attaining the overall organisational objectives very-very efficiently and in a best possible manner? Thank you very much!