Engineering Economic Analysis
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Lecture 27
Elements of Cost: Types of Cost

Welcome to the lecture on elements of cost. So in this lecture we will discuss about different types of cost. Cost is very important for the organisation because there are different type of expenses which is incurred by the organisation. These expenses are basically categorised under different names and finally depending upon the objective of the organization, the organisation will set the cost of the asset or the selling price of the unit piece of the asset or the product.

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And in that way it will try to have the income as per its own plan. So let us discuss about different types of cost which is incurred. Now coming to the first type of cost relating to the manufacturing of components, let us first discuss about the costs if we look in the manufacturing aspect manufacturing of any component. So in that basically you have manufacturing type of cost and nonmanufacturing type of cost.

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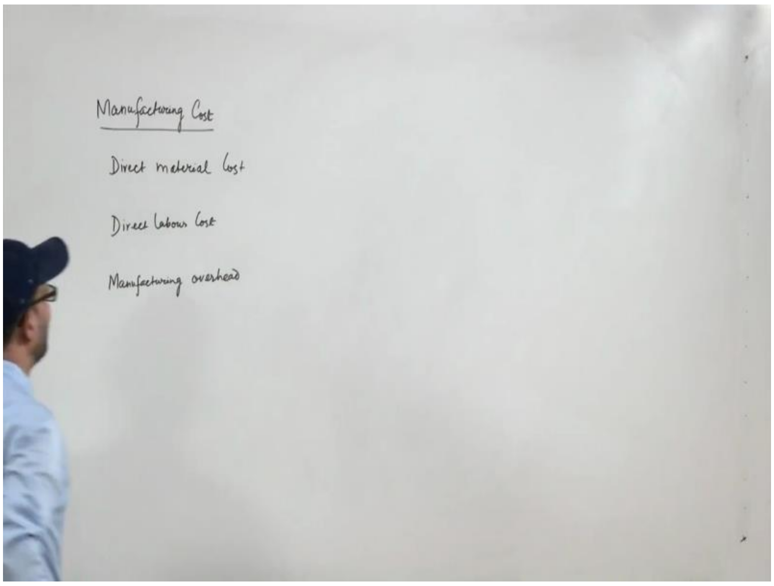

Now in that basically in the manufacturing cost basically you use either the direct material, direct labour, direct labour cost and manufacturing overhead. Now in the direct material cost, the cost of the materials which are directly used for the production of any product and which is clearly visible.

So like the cost of rubber or cost of steel for making a pen, the cost of metals used for the ball, all these are the direct material cost because they are the materials cost which is visible and that is why they are known as direct material cost. Similarly direct labour cost, all the cost on the labour who are directly involved with the production of the product, so that is known as direct labour cost.

Then comes manufacturing overhead, now apart from that, there are many kind of cost which are going behind the scene that is used to make the product, so that is known as manufacturing overhead. The costs like the heat and light, the electricity used to make the product, the depreciation, all that of the machines.

These things are under the manufacturing overhead type of cost because basically these are all the cost except the direct material cost and the direct labour cost which are used for the manufacturing of the component, they are known as manufacturing overhead type of cost because they are all dealing with the manufacturing of the component.

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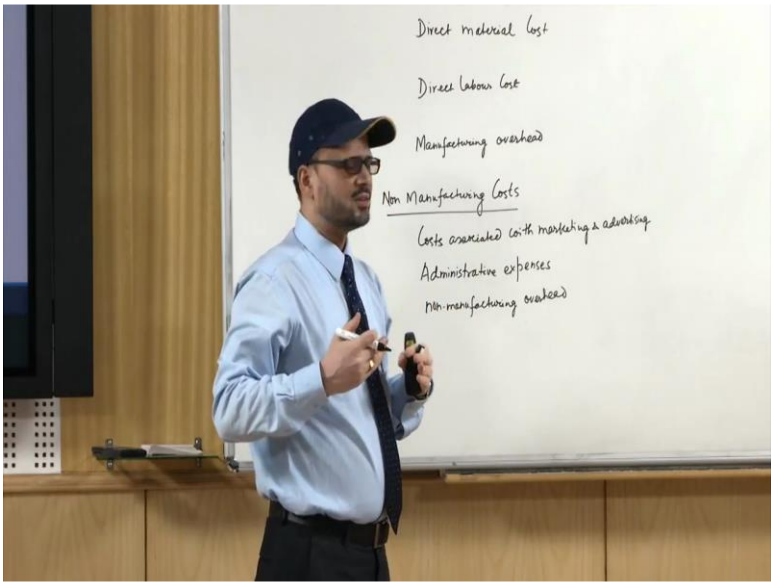

Then comes nonmanufacturing costs. Now apart from the manufacturing costs, there are also nonmanufacturing costs, the costs which are incurred not directly related to the manufacturing portion. So the costs are like costs associated with marketing and advertising, sales promotions, all these type of costs, they are under this nonmanufacturing costs because these costs are required to put in a different category.

They are not directly related to the manufacturing of the product, however these are required for selling the product and selling is also an integral part because it is objective of the organisation to sell the product.

Similarly you have administrative expenses, so all the administrative expenses, you have recruitments, you have a lot of recruitment of the persons at different administrative levels, meetings, all that expenses which are going on, these are under the category of administrative expenses.

Then you have also nonmanufacturing overhead, so all the other costs like heat, light, electricity, appreciation of machines which are not an integral part of the manufacturing unit those costs are coming under this nonmanufacturing overheads.

So all the equipments which are there in the manufacturing section, which are dealing with the production of the product their depreciation and the premium paid on them, interest, all these are coming under manufacturing overhead and all of those of those equipments which are used in the administrative and the marketing divisions, they are under the nonmanufacturing overhead.

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Next is period costs and product costs. Now when we talk about the financial statement perspective, we want to make the financial statements, then the costs can be categorised under two broad names and these are period costs and product costs. Now period costs are those costs which are better to be expressed when in a certain period. So like the depreciation, taxes all these type of expenses which are better to be put in a period, so that is known as a period cost.

Basically in financial terms, these costs are treated as expenses. So whenever these costs are incurred, it is felt that the expense has already been done. So then we subtract these costs from the statement which we prepare.

Then we have product costs, now these are the costs which are better to be expressed related to the product. So all the cost related to the direct labour costs or direct material cost, it is better to express them for the product because they are ultimately going to be linked with the production of the product and that is why they are known as product cost.

The difference between the period cost and the product cost is that while this cost is treated as expenses incurred, so far the product is not being sold, this cost is treated as an asset. So even if the product is made, the cost has been incurred on making the product, this cost is just like an asset till the product is going into the market and it is being sold. So this is the difference between period cost and product cost.

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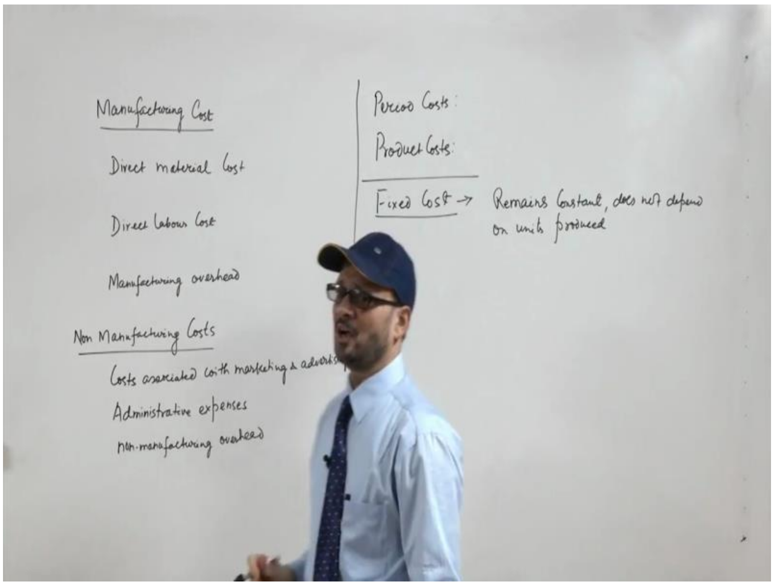

Now let us see the behaviour of some of the costs. So on the basis of cost behavior there are cost known as fixed cost and variable cost. So let us see fixed cost and variable cost, now this fixed cost is that type of cost which remains fixed till the products I mean when we define certain production capacity for that particular capacity, this cost remains fixed irrespective of how many units of product is being produced upto its capacity.

So fixed cost basically remains constant, does not depend on units produced. So the rent on the building, depreciation of the building, depreciation of the equipment being used, all the expenses are coming under the fixed cost because they have nothing to do with the production units produced.

Administrative expenses, expenses on the sales and marketing, advertisements, they have nothing to do with the units produced, so these expenses are under the category of fixed cost.

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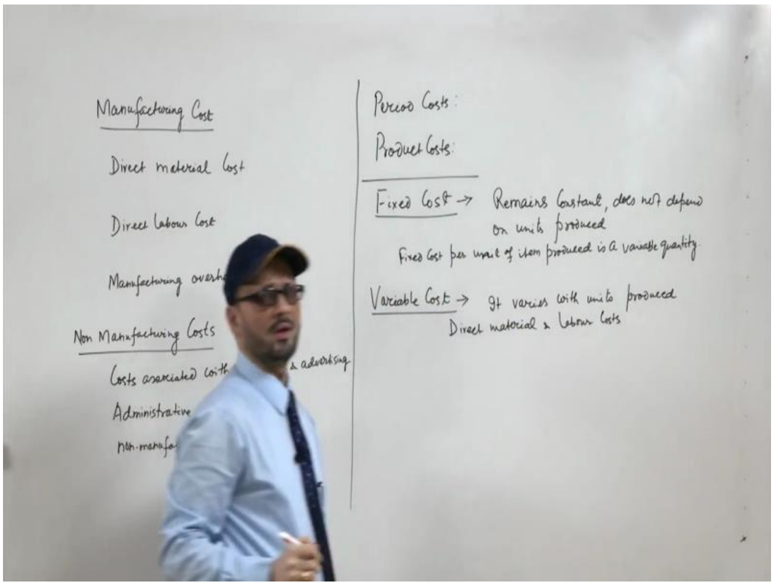

Then comes the variable cost, variable cost is the cost which varies with the amount of units produced. So as the number of units produced, this cost will go on increasing, so it varies with units produced. So direct material cost and direct labour cost, these are the examples of variable cost because as the number of units will be produced, these direct material and direct labour cost will be increased.

And on the other side if we produce less number of units, these type of cost like direct material or direct labour cost, they basically are accordingly decreasing. So what we see is, that this fixed cost per unit, that basically changes. So fixed cost per unit item produced is a is a variable quantity. As we vary the number of quantity produced, this fixed cost per unit of item produced will be varying while the variable cost per unit is a fixed quantity.

Because per unit cost is basically a fixed amount and it goes on changing as the number of units produced is changed. Now another cost which comes in between is the mixed cost, mixed cost is the another variety of cost which is adjudged by the cost behavior, so mixed cost means its has both component, a fixed component as well as a variable cost component.

Now let us see the depreciation of any machine, the machine will depreciate at its own rate but larger the machine will be used, if the machine is used beyond its capacity, then certainly its depreciation will be more. So it has a fixed percentage as well as a variable part, so that is why this type of cost is known as mixed cost. So on the basis of cost behaviours, we categorise them in the category of fixed cost, variable cost and mixed type of cost.

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Now once you have got the cost then you have average unit cost. The average unit cost is based on, once you have got the total cost, then to a certain the cost which is has been incurred on the product, you express them in terms of average unit cost. So what is the cost incurred and how many units are produced based on that you calculate the value of average unit cost.

Now you have another cost that is incremental cost. Sometimes you now there are different names to these incremental cost, you can have the name as a differential cost also at some point of time. Now this cost refers to the cost when you try to increase the production by a unit quantity. So the amount of cost which you incur for producing one extra unit that is known as incremental cost.

So suppose your production capacity is 3000 units and it is expected that it has to make another 200 units above then the normal values in that case, if for making the 100 units, you are incurring something close to Rs. 5000 in that case Rs. 50 per unit is the incremental cost. So this incremental cost is the cost which is used for making one extra unit. Then comes opportunity cost.

Now opportunity cost is the cost that is basically associated with the situation when you have alternative course of action and when you choose to go for the alternative course of action, in that time you have to compromise on certain grounds, so you have to forego certain benefits and this is known as the opportunity cost.

Suppose for example, if you are studying and while studying you are also doing some part time jobs, now in the study period you got a break and you want to go to meet your parents, so during the break you have to take the leave from your employer who gives you Rs. 500 every week. Now the employer if he tells you to go, you will be losing Rs. 500 for the week you want to go during the vacation.

So this type of cost is known as opportunity cost because you are losing this opportunity to earn Rs. 500 for a week and you are going for other place, other destination. So these type of costs are coming under the opportunity cost. Another cost which is also used when we do the economic analysis is the cost like sunk cost. We have already discussed about it, sunk cost is that cost which has been incurred in the past and cannot be recovered.

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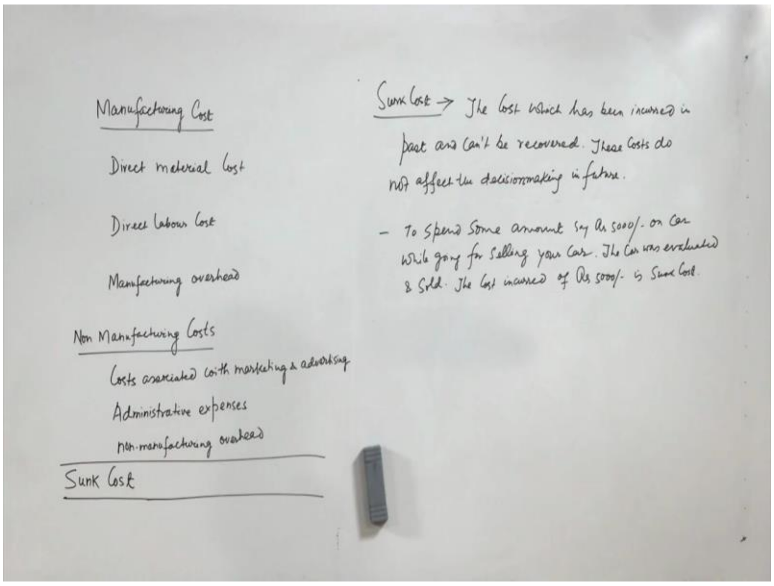

So these are the cost basically, it is said that since they are incurred in the past, they are not relevant for any kind of decision making. So let us write the definition of certain type of cost, so you have sunk cost, the cost which has been incurred in past and can’t be recovered. So these costs do not affect the decision making in future. Now we can have the example of this, suppose we have a car which we have to sell, so we are going for the advertising our car.

Now while going for advertising, if we feel and if we are faced with a circumstance in which some of the part of the car is not working and you have to repair it so suppose you have incurred some cost on the car, now you have gone to sell it and you are able to sell the car. The value of the car was suppose evaluated as Rs. 2,00,000 and you were able to sell your car but in between you had to spend some amount say Rs. 5000 on car while going for selling your car.

So the car got break down and you had to spend some amount. The car was evaluated and sold. Now you must be thinking of the amount of which you have incurred on it but you cannot do with it, you cannot do anything with this amount which is spent. So basically this amount is known as the cost incurred of Rs. 5000 is sunk cost.

So because now you cannot it is not going to be recovered, its not going to affect the decision making of selling the car, you have to anyways sell it so this cost which you incurred is known as a sunk cost. Then we can also come across you cost terms known as suppose first cost of the asset. When we deal with this term first cost of the asset means that cost on those assets which are basically used by the industry for the first time while setting up the industry.

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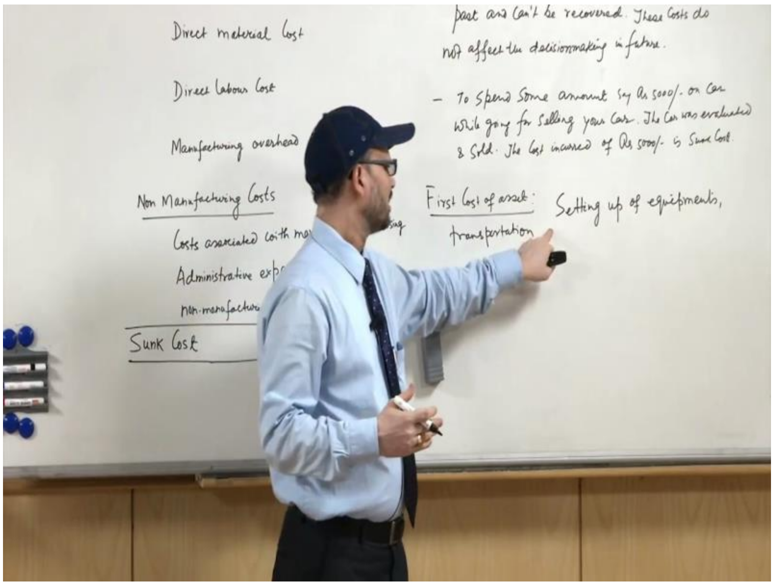

So all the capitalised type of assets, the cost incurred on those assets basically are under the category of first cost of asset. So in this basically setting up of equipments, transportation, all the equipments which is coming for installation, all the costs which are there at the initiation of the organisation of the plant, all these costs are under the fixed cost of the asset.

So it is basically since it is the first cost of the asset because it is all done before the start of the production, before the start of the work which will produce the units, so that is why it is under the first cost of the asset. Contrary to that there is a cost sometimes known as operation and maintenance costs, now this is a cost which is basically dealing with the cost while running the production.

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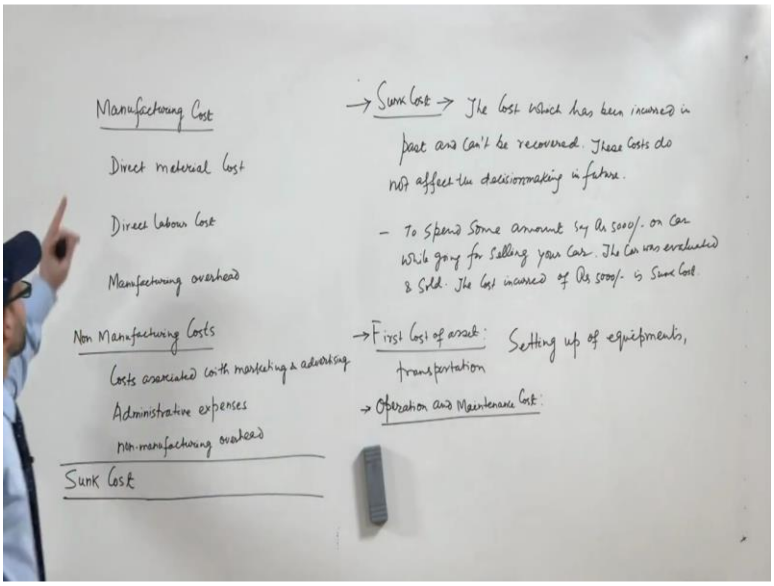

When the production run is going on at that time all the kind of cost which are incurred, they are under this operation and maintenance costs. So in that the expenses on the electricity, light and also the depreciation, insurance premium all these costs, they are under the operation and maintenance cost. So this way we can see that we we come across different type of costs in the company.

We defined the opportunity cost as the cost which is foregone while choosing an alternative course of action.

As we had discussed earlier, during the replacement analysis that the when we have alternative available to us, in that case when we talk about some of the cost which basically some of the benefits which basically we are devoid of, if we dont take any other option these cost are coming under the opportunity cost because that we are losing by selecting an alternative action. So these costs are under the opportunity cost.

So basically we have dealt with different types of cost and when we can have a problem solving on these we can see that how we categorise these costs under the different categories based on that you can have the cost in terms of fixed and variable costs and these two costs are used to see that what will be the total cost on the product and based on that you can set the price of the product which you have to sell.

That will produce the income and based on that you can earn the profit. Once you sell it beyond certain point and that will be a breakeven point that we will discuss in our next class. Thank you.