

Managerial Accounting
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Module - 10
Lecture - 22
Job and Process Accounting

So, dear students, in last 2, 3 sessions we are discussing about accounting for various cost to take a very brief recap. In the beginning we discussed about what is cost accounting than cost classification and then we are looking at accounting for the cost that is recording of various cos. So, in the cost classifications we had discussed 1 important classification that is direct and indirect which is very relevant for recording. So, do you remember what was discussed as a direct cost? As name suggest it is direct in a sense it is exclusive or it can be specifically related to a particular cost centre such cost are known as direct cost.

So, in statement number 1 when you are trying to account for the cost first you try to segregate all cost into direct and indirect and that is known as cost allocation. If you remember , so in cost allocation all the costs which are direct are charge to the cost centres directly. And there is a common pool which is known as overheads which cannot be charged that remains. Step number 2 is apportionment do you remember what is apportionment? So, in apportionment this common pool it is charged proportionately to various cost centres on some reasonable estimate like rent may be charged based on floor space and so on.

What is a stage number 3? So, step number 1 is allocation, step number 2 apportionment step number 3. What it is do you remember? It is reapportionment be cost the cost which is collected at a servicer cost centres needs to be charged again to production cost centre. For example, expenses or canteen or expenses on maintenance they are charged to production cost centres.

So, allocation apportionment reapportionment number 4 is absorption. So, you remember now what is absorption? In absorption we essentially charge the cost from cost centres to cost units or the products based on some logical bases. So, we have discussed that one of the popular bases is machine hour rate.

So if you have the total cost at cost centre and you do the number of machine hours you divide the cost by machine hours and get a machine hour rate. So, every product passing through the cost centre will be charged a particular rate based on the machine hours consumed in that department or the cost centre.

So, absorption is a process where the cost are charged to the products or to cost units so this was step number 4 step number 5 is under or over absorption. So, actual cost when they are available they are compared with the absorb cost because absorb cost are based on the budget they are predetermined. So, they are compared with actual and a difference is under or over absorption I hope you have understood up to this and we have done up to this.

Now, let us go to stage number 6. Now, have you calculated under and over absorption amount, what will you do with it? So, what can be done if you remember we will go to the example which we discussed last time? So we are discussed about this company DEE and BEE in the last session.

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Two Companies DEE and BEE have prepared the following Budgeted data for			
	DEE	BEE	
Predetermined rate based on	Direct Labour Cost	Machine Hours	
Budgeted Overhead	300,000	500,000	
Budgeted Machine Hours		200,000	
Budgeted Direct Labour Cost	400,000		
Actual overhead cost and actual level of activity for 2012 is shown as follow			
	DEE	BEE	
Actual overhead costs	400,000	500,000	
Actual Machine Hours		300,000	
Actual Direct Labour Cost	500,000		
Compute the under and over-absorbed overhead costs.			
Solution:			

So here you can see that for company DEE there was under absorption to the tune of 25000.

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13	Actual Direct Labour Cost	500,000	
14			
15	Compute the under and over-absorbed overhead costs.		
16	Solution:		
19		DEE	BEE
20	Actual Overhead Costs	400000	500000
21	Factory Overhead Absorbed/ Applied during 2012		
22	500000 actual direct labour cost*75%	375000	
23	300000 actual machine hours *Rs2.5		750000
24	Under-absorption	25000	
25	Over-absorption		250000
26			
27	Working		
28	Calculation of Absorption Rate		
29		DEE	BEE
30	Predetermined rate based on	Direct Labour	Machine Hours
31	Budgeted Overhead	300000	500,000

So actual cost was 400000s our system is to charge the cost at 75 percent of actual labour cost so 500000 into 75 percent so we have charged 375. There is under absorption to the tune of 25 now in the accounting system the cost recorded is 400000. Whereas, to the customer you have charged only 375 so 25000 will remain as under absorb.

Now question is what will you do with this 25000 who will bare this cost should you charge more on those same products or should it be charged and borne by the company. As a common pool that decision will have to be taken and that is our stage number 6. So, what do you feel what could be the right way. I hope you remember the sum otherwise you can take a look at the sum again and think over what can be done.

So as far as department d is concerned the budget was 300000 actual is 400000 no problem but of that 400000 also since the budgeted labor cost is 400000 into 75 percent. So, I could absorb only sorry budget a actual labor cost is 500000 so in 75 percent. So, I was in a position to absorb 375 where as the actual cost incurred 400000.

So what to do with this 25000 1 possibility is instead of 75 percent which is the rate we are charging. Now, revise the rate so that the balance of 25 also can be absorbed are you getting, so because we charged at 75 percent we ended up with the balance of 25. So 1 possibility is instead of 75 say calculates at 80 percent, so that will take care of that difference this method is known as supplementary rate.

So, 75 percent is a basic rate which is predetermined charge extra by following additional or a supplementary rate of course, supplementary can be negative also. You can see in case of product company b there is a under absorption of 250000. So if you look at company b they follow a rate 2.5 per machine hour. So, these their budgeted figures 500000 was the budget of machine overheads and 2 200000 was a budget of machine hours.

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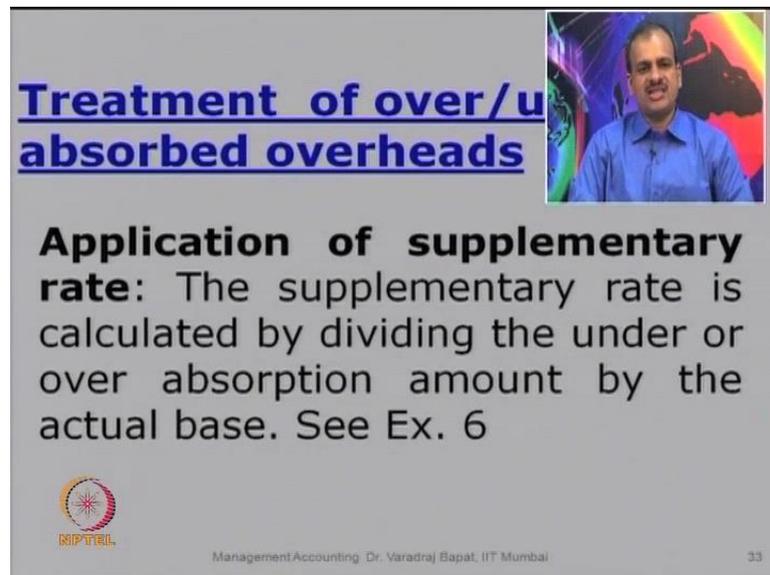
		DEE	
19			
20	Actual Overhead Costs	40000	
21	Factory Overhead Absorbed/ Applied during 2012		
22	500000 actual direct labour cost*75%	37500	
23	300000 actual machine hours *Rs2.5		750000
24	Under-absorption	25000	
25	Over-absorption		250000
26			
27	Working		
28	Calculation of Absorption Rate		
29		DEE	BEE
30	Predetermined rate based on	Direct Labour	Machine Hours
31	Budgeted Overhead	300000	500,000
32	Budgeted Machine Hours		200,000
33	Budgeted Direct Labour Cost	400000	
34	Predetermined overhead rate	0.75	2.5
35		75% of Direct labour cost	Rs. 2.5 per hour

So, 2 point 5 was the rate we applied 2.5 on the actual machine hours which are 300000. So, absorption was to the tune of 750000 actual overheads are less they are only 500000 but they absorption was 750. So there is a over absorption of 250 that means the rate which of 2 point 5 which they charge is excessive. So, they may have negative supplementary rate. So, if they find that instead of 2.5 they could have charge only 2 rupees they can have minus 0.5 as supplementary rate actual are different I am just giving here example.

So supplementary rate could be positive or negative but what I am trying to convey is 1 way of making the correction is to have a supplementary rate. Can you think of any other way of correcting it there are 3 ways totally? So, 1 is supplementary rate other is do not make any correction at all in which case this 25000 which have to have to be borne by the company. It will be charged to their costing profit and loss account means it is not charged to any product. It will be simply borne by the company this is method number 2

method number 3 is you carry over this 25000 to next period. So these 3 methods are used now which method is suitable in which case I will just show you p p t. So, those methods are more clear to you.

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Treatment of over/under absorbed overheads

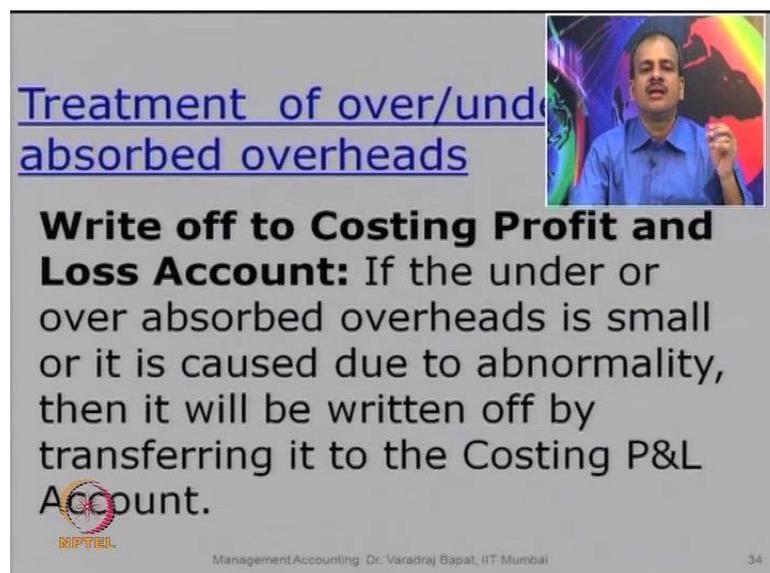
Application of supplementary rate: The supplementary rate is calculated by dividing the under or over absorption amount by the actual base. See Ex. 6

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So we are talked of this 2 methods first as application of supplementary rate. So, this rate is calculated by dividing the overall under absorption by the actual base.

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Treatment of over/under absorbed overheads

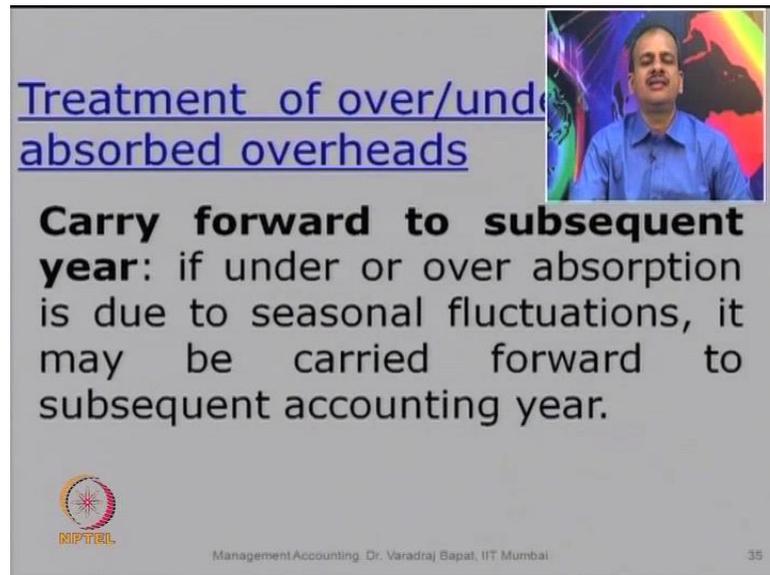
Write off to Costing Profit and Loss Account: If the under or over absorbed overheads is small or it is caused due to abnormality, then it will be written off by transferring it to the Costing P&L Account.

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This slide features a title in blue underlined text, a video inset of the same man in a blue shirt, and a main text block explaining the write-off method. The footer includes the NIPTEL logo, the speaker's name and affiliation, and the slide number 34.

The second is writing of 2 costing p.

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Treatment of over/under absorbed overheads

Carry forward to subsequent year: if under or over absorption is due to seasonal fluctuations, it may be carried forward to subsequent accounting year.

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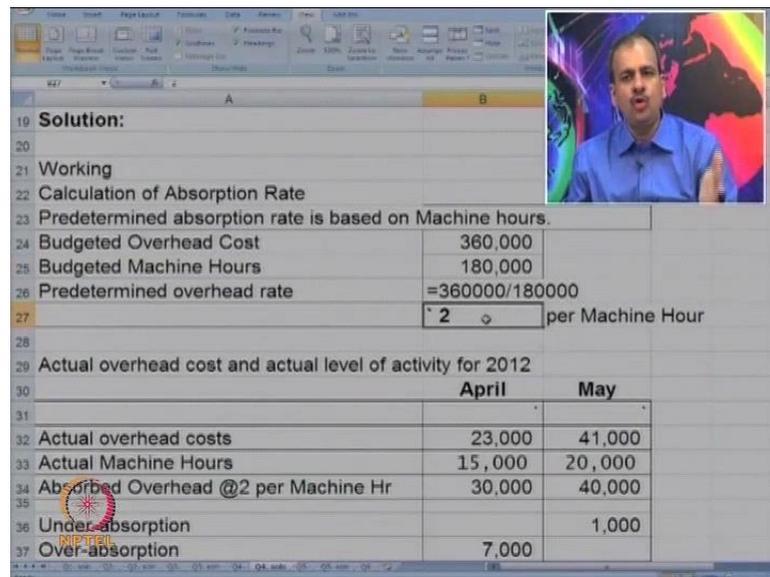
Then L and third is carry forward to subsequent periods. Now, what happens is if the amount of difference is too small there is no point in making recalculation of supplementary rate and making changes. You know all the costs sheets extra because amount is very small and it can be very much borne by the company.

So, in such cases, it is charged to costing P and L secondly sometimes the amount is caused due to abnormal causes. Let us say, due to accident due to fire you cannot charge it to the customers you have to borne it. So, 1 when it is too small or 1 when it is due to abnormal reasons it is charged to costing P and L or it is writ 10 of 2 costing P and L and it is called...

So it is not charge to any product sometimes it is due to seasonal fluctuations. Particularly, when you are doing monthly calculation, it may happen that in particular month there is a over absorption; in the next month there is under absorption. So, there is no need to charge it will simply get adjusted as you go over so in such cases it is carried forward to subsequent period.

Now, if you both the this is not being done supplementary rate may be used I hope that 3 methods clear to you. But, we look at the cases, so I would like to go back to question number 4 which you were done please have a look at question number 4 again. So, I am directly going to solution. So, 360 was the overhead cost 180 was the budgeted machine hours so we had budgeted.

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Solution:

Working

Calculation of Absorption Rate

Predetermined absorption rate is based on Machine hours.

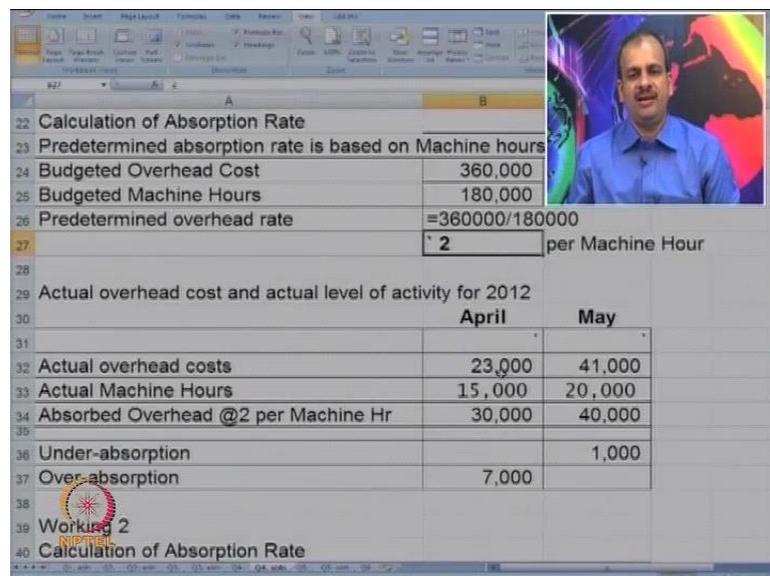
Budgeted Overhead Cost	360,000
Budgeted Machine Hours	180,000
Predetermined overhead rate	$=360000/180000$
	2 per Machine Hour

Actual overhead cost and actual level of activity for 2012

	April	May
Actual overhead costs	23,000	41,000
Actual Machine Hours	15,000	20,000
Absorbed Overhead @2 per Machine Hr	30,000	40,000
Under-absorption		1,000
Over-absorption	7,000	

2 rupees per machine hour as a predetermined rate ...

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Calculation of Absorption Rate

Predetermined absorption rate is based on Machine hours

Budgeted Overhead Cost	360,000
Budgeted Machine Hours	180,000
Predetermined overhead rate	$=360000/180000$
	2 per Machine Hour

Actual overhead cost and actual level of activity for 2012

	April	May
Actual overhead costs	23,000	41,000
Actual Machine Hours	15,000	20,000
Absorbed Overhead @2 per Machine Hr	30,000	40,000
Under-absorption		1,000
Over-absorption	7,000	

Working 2

Calculation of Absorption Rate

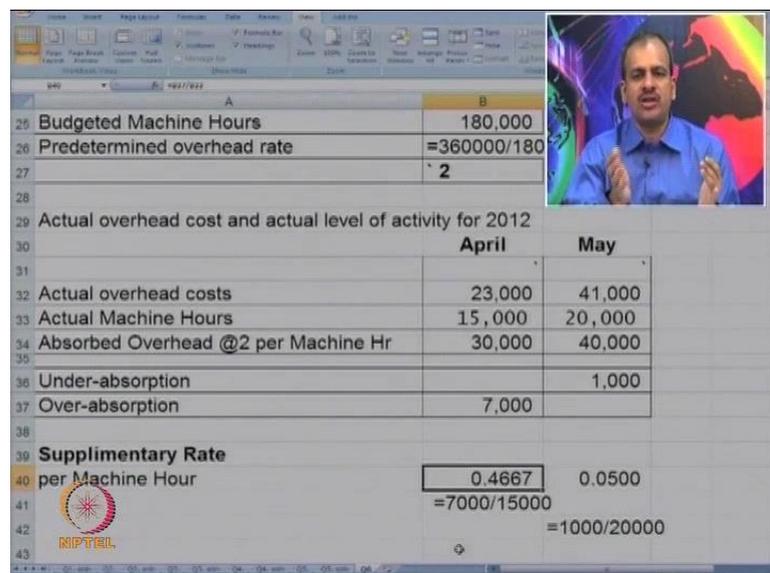
Now look at the month of April, the actual cost was 23 actual machine hours were 15. So, there was absorption of 30, so there was a over absorption of 7. If you look at the month of may the actual cost increased to 41 the absorption is 40. So, there is under absorption of 1000 so which method could be recommendable perhaps you can see that 2 rupees is a annual rate. There may be some monthly fluctuation and if that fluctuation is

getting adjusted. We can simply carry it over for April to May; May to June so on which generally it should get adjusted by the end of the year.

So, in some cases, carry forward become suitable if we feel that in the month of april there is too much of over absorption and it is not abnormal. It is better to pass it on to the customers we may go for supplementary rate. But, if we feel that this is due to some abnormal cost then we instead of supplementary rate we can go for writing it off to P and L.

So, looking at the circumstances the company has to decide what method can be most suitable. Let us look at 1 more case which will make it further clear to you so this is the data again of the problem number 4 only. So, you have to compute over and under absorption and also find the supplementary rate. So, we are actually already done over and under absorption. So, just now, as we saw 2 rupees per machine hour was the rate there is a over absorption of 1 1000 in may and under absorption of 7000 in April. Now, how will you calculate the supplementary rate? We have to look at the actual base which is 15000 and 20000 in those months. So, 7000 we divide by 15 we get a rate of 0.4664. So there is a over absorption.

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Actual overhead cost and actual level of activity for 2012			
	April	May	
Budgeted Machine Hours	180,000		
Predetermined overhead rate	=360000/180		
	2		
Actual overhead costs	23,000	41,000	
Actual Machine Hours	15,000	20,000	
Absorbed Overhead @2 per Machine Hr	30,000	40,000	
Under-absorption		1,000	
Over-absorption	7,000		
Supplimentary Rate per Machine Hour			
	0.4667	0.0500	
	=7000/15000		
		=1000/20000	

So, this rate can be negative. So, instead of 2 rupees which we have already charged we could have charged something like 1.53. So, we will charge minus 0.46 now, to even it out in the month of may you can see 1000 was under absorb 1000 upon 20000. So, it

comes to 0.05 which is positive are you getting. So this is how supplementary rate can be calculated and we just now discuss that 1000 if you feel is too less. So, rate will be also 0.05 it may not be worth it to make all the changes. We can simply write it off and this is significant so we may go for...

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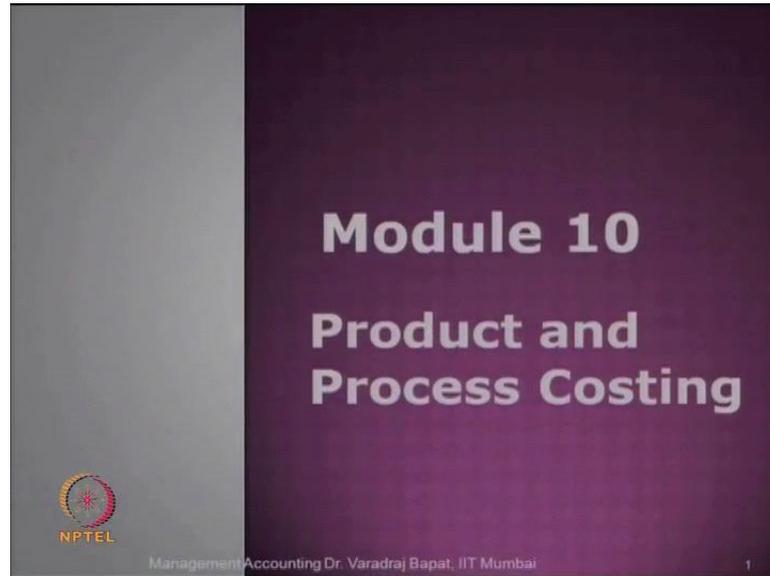
Actual overhead cost and actual level of activity for 2012			
	April	May	
Budgeted Machine Hours	180,000		
Predetermined overhead rate	=360000/180000		
	2		
Actual overhead costs	23,000	41,000	
Actual Machine Hours	15,000	20,000	
Absorbed Overhead @2 per Machine Hr	30,000	40,000	
Under-absorption		1,000	
Over-absorption	7,000		
Supplimentary Rate per Machine Hour	0.4667 =7000/15000	0.0500 =1000/20000	

Supplementary rate so company has to take call so this was about accounting for over and under absorption.

• Major changes might have taken place for example replacement of manual labour with machines, replacement of general purpose machine with automatic high speed machine

So, I hope there is a clarity now on module number 9 we will go to module number 10 now.

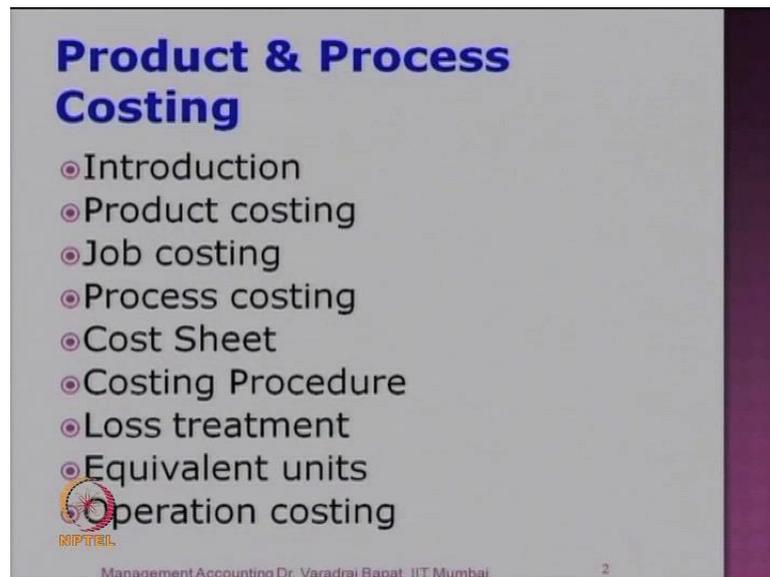
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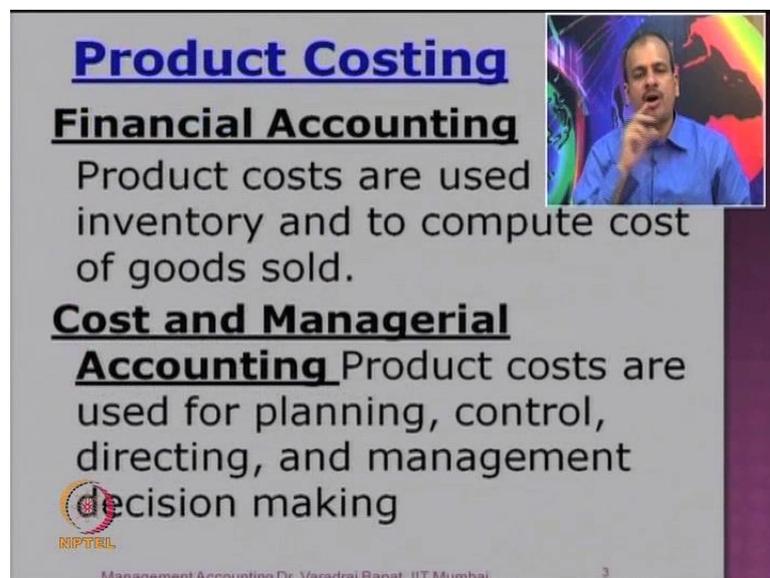
Now, I think briefly you have understood what is cost accounting? We have also discussed the classification of cost and we have discussed recording for the cost in module number 10. We are going to discuss about calculation of product and process cost there are 2 prime methods of costing: 1 is known as job costing, the other is known as process costing. Of course, many times company is used lot of combinations of this but just for clear understanding we assumed that there are 2 distinct methods. And there are some special features for job costing there are some special features for process costing.

Now, looking at the nature of industry management has to take a call which is a more suitable method of costing for them. As I said actually for some part they may go for process or some components they may go for job and so on. So, they may be use a composite method, but for more clarity we will look at the characteristics of both the methods and also see the advantage and disadvantages of both the methods.

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So we are discussing about product and process cost in this presentation we are going to talk about product costing in that you have job and process costing. What is a cost sheet, what are the costing procedures? The treatment of loss about the equivalent units which is particularly required in process costing and in the end we will discuss about operation costing.

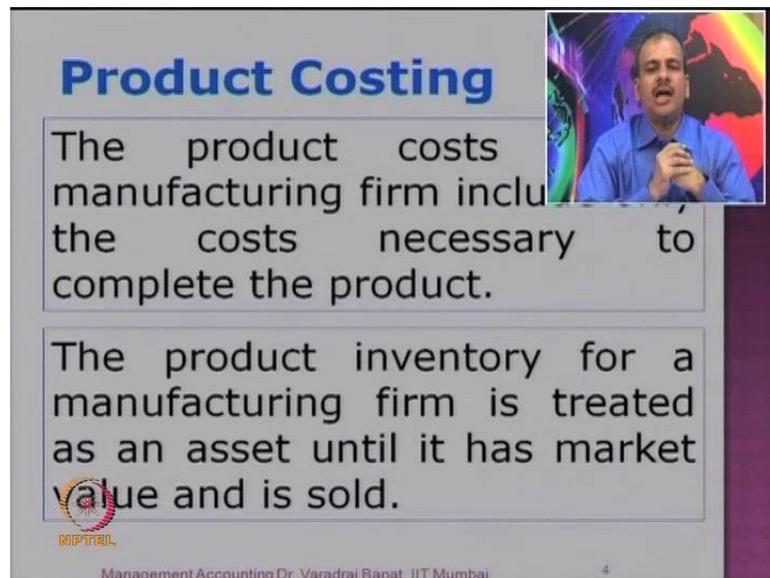


So, product costing is very important in financial accounting it is mainly used for valuation of inventory and to compute the cost of goods sold in cost and management accounting. It is even more important because apart from inventory. It is very much useful for planning controlling directing and managing of various decisions. So it is very

important that we are able to get a fair cost of our product. Because, our decisions like pricing are based on that if you want to make or by decision; it is based on that we would like to definitely control our cost.

So, we should be able to calculate the correct cost, so that we can compare and control, so many of the control as well as decision making functions are based on right product costing.

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Product Costing

The product costs manufacturing firm include the costs necessary to complete the product.

The product inventory for a manufacturing firm is treated as an asset until it has market value and is sold.

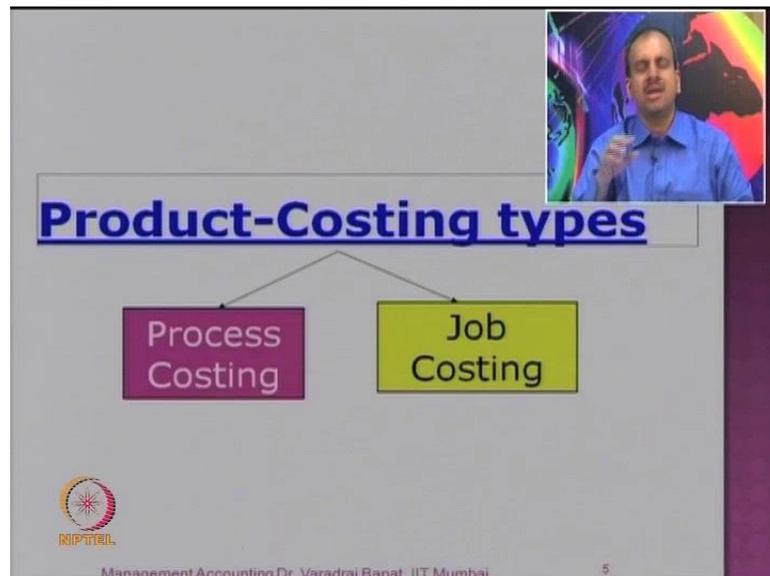
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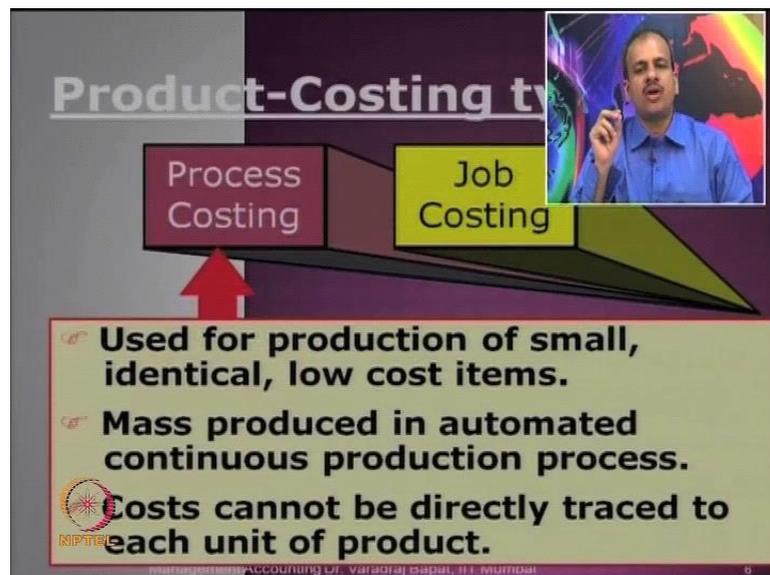
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Now, here in product cost especially in manufacturing concerns the cost for completing product becomes important. And that is what is treated as an asset in the balance sheet because the stock becomes or the inventory becomes 1 of the important assets.



Now, as we discussed in the beginning there are 2 major methods for product costing, one is process costing the other is job costing these are the features of process costing.

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It is mainly used for large scale mass production of identical items. So, production processes here are continuous in nature you cannot trace a piece of input to output because inputs are continuously being pumped in. They are getting process together and output comes out from the factory. May be, there are different products coming out form the set of processes number of inputs are going number of outputs are going.

So, you cannot directly relate any input to output and usually the production is automated on a large scale items typical units could be slow cost or small items. So, which industry you feel process costing is write sin or you just think of as against this there is a job costing. Let us say, there is I will give you 4 5 examples you can tell me whether it is suitable to use processes costing. Let us say: plastics, cement, steel, construction transportation and consultancy.

In which industries the process costing will be more suitable? I will repeat plastics, steel, construction transportation receive, oil refining which industries have correct restricts suitable for process costing? In large production like steel can you indentify for who which customer you are making steel no it is being made through a continues process. Same way in refining or f m c g say you are making soaps can you identify this soap is for which customer no certain chemicals are being put into soap manufacturing. And you get sock soap cakes out of it or you may be getting other bi products.

But, there is no 1 to 1 correlation from input to output neither the production is being made for particular customer. Lot of low cost items are getting produced which scenario is very much suitable for process costing.

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Here are the examples we already discussed some of them. So, refinery steel paper mills readymade garments in garment making particularly you see that both process and job is

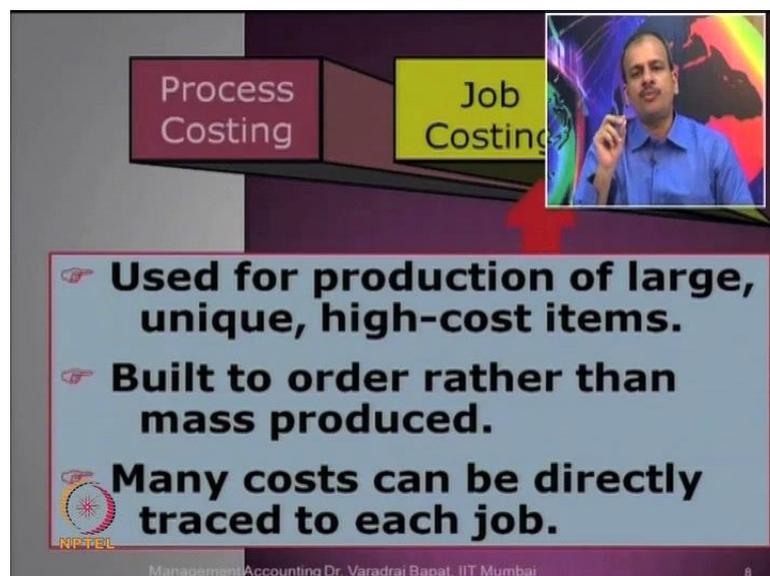
possible for readymade garment process costing is right. Scenario in which case in garment making you have a job costing can you think of.

So, you go to shop or mall they have produce n number of shirts. Let us say, whatever you like you pick up as against this you by cloth go to tailor get the shirt made as per your requirement. Both is possible which is more appropriating process costing and which is more appropriating job costing. Obviously, readymade garments is through process costing and a tailor made garment is through job costing, now I think the difference is clear to you.

So, in tailor made case it is known that from this cloth this particular shirt is being produced. It is being produced as per specification of 1 customer it is a specifically identifiable. Can you identify it in case of paper is this paper being specially made for me? No, paper is being made on large scale I have some choices available I can chose the paper which is more suitable to me and I buy.

But, there is it is not being made specially for my requirements of course, in case of security printing or currency printing it is different. But, generally in a paper mill different types of papers are being made as per the manufacturer's specifications. So, for refining steel paper mills I had also given you example of plastic cement almost all large scale manufacturing is being done, mainly through process costing. Now, let us look at job costing.

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The slide features a dark background with two boxes at the top: a purple one labeled 'Process Costing' and a yellow one labeled 'Job Costing'. A red arrow points from the 'Job Costing' box to a list of three bullet points. In the top right corner, there is a small video inset showing a man in a blue shirt speaking. At the bottom left is the NPTEL logo, and at the bottom center is the text 'Management Accounting Dr. Varadraj Bapat, IIT Mumbai'. A small number '6' is in the bottom right corner.

- **Used for production of large, unique, high-cost items.**
- **Built to order rather than mass produced.**
- **Many costs can be directly traced to each job.**

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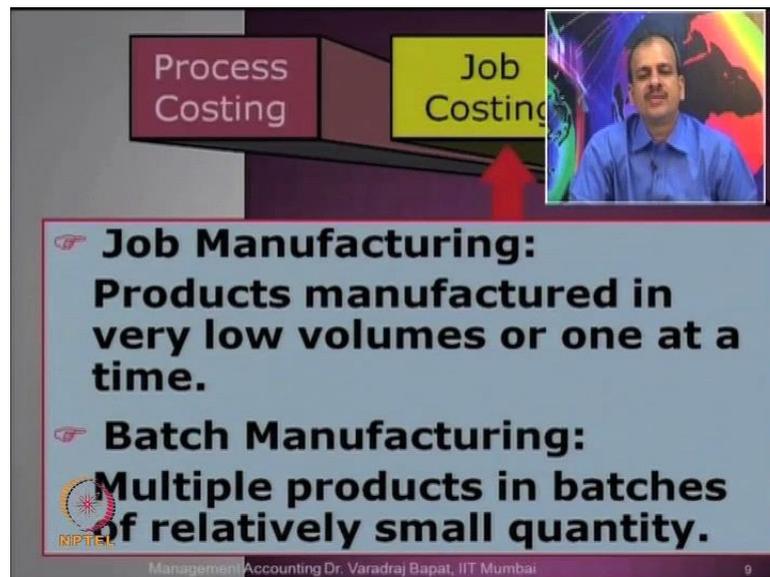
Now, in job costing what happens these are large unique high cost items they are mainly built to order they are not being mass produced. And here there is 1 to 1 correlation between input to output. So, many of the cost can be directly traced to a particular job now can you give me examples of job costing, just think of the examples. 1 is of course, I told you in case of garment what will be the example of job costing will readymade garment be the example for job costing. No, because that is in mass produces whereas a tailor made garment is a specific example of job costing. Like that, any other examples can you think of nowhere is job costing done apart from tailor made garments.

If you go to a doctor you are not well the advice he or she gives to you is it mass produce or customize. Definitely, it is customized so a professional service is essentially being given to 1 customer medicines recommended. Maybe, mass produced they are not produce only for you doctor may prescribe some standard medicines which are mass produced in the factory. But, which medicine to take and in what doses extra that professional service is essentially in the nature of job costing.

Because, it is a customize built to a specific person like that any other examples you are what is known as designer costumes, which are specifically made for 1 customer. Of course, they are very costly but that is an example of a job costing. Any other case construction industry will fall in which 1 this is a very good example of job costing.

So, if dam or bridge or even building is getting constructed it is unique in nature it is not like mass produce soaps or mass produce steel. Steel may be going into construction of say fly over but fly over is being built for a particular location that is why it is an example of job costing.

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Process Costing

Job Costing

Job Manufacturing:
Products manufactured in very low volumes or one at a time.

Batch Manufacturing:
Multiple products in batches of relatively small quantity.

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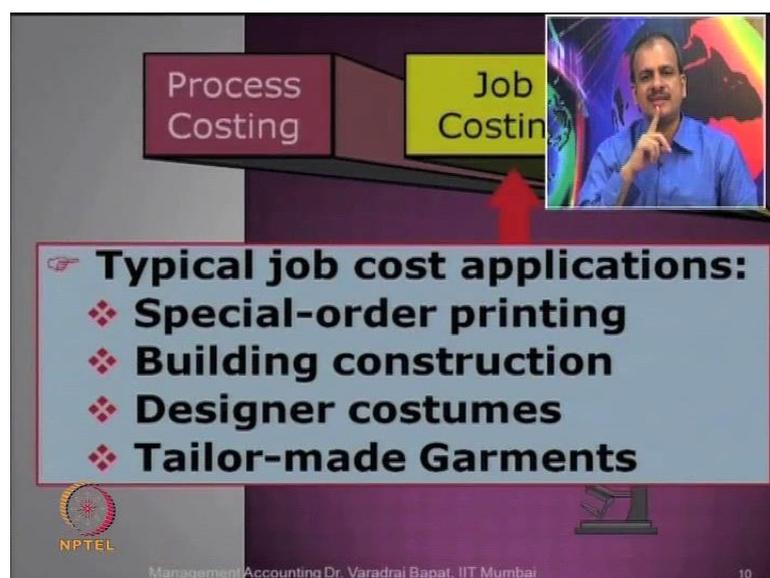
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The slide features a 3D-style header with two boxes: 'Process Costing' in a purple box and 'Job Costing' in a yellow box. A red arrow points from the 'Job Costing' box down to the main content area. In the top right corner, there is a small video inset of a man in a blue shirt. The main content area has a light blue background with black text. At the bottom left is the NPTEL logo, and at the bottom center is the text 'Management Accounting Dr. Varadraj Bapat, IIT Mumbai'. The slide number '9' is in the bottom right corner.

So, these are the features now job costing itself can be divided into 2 types 1 is job manufacturing. Other is batch manufacturing in job manufacturing the manufacturing happens just 1 at a time or a very small volume in batch manufacturing. It is in a relatively small quantities but it is not just 1 batch some multiple some group of products are being produced.

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Process Costing

Job Costing

Typical job cost applications:

- ❖ Special-order printing
- ❖ Building construction
- ❖ Designer costumes
- ❖ Tailor-made Garments

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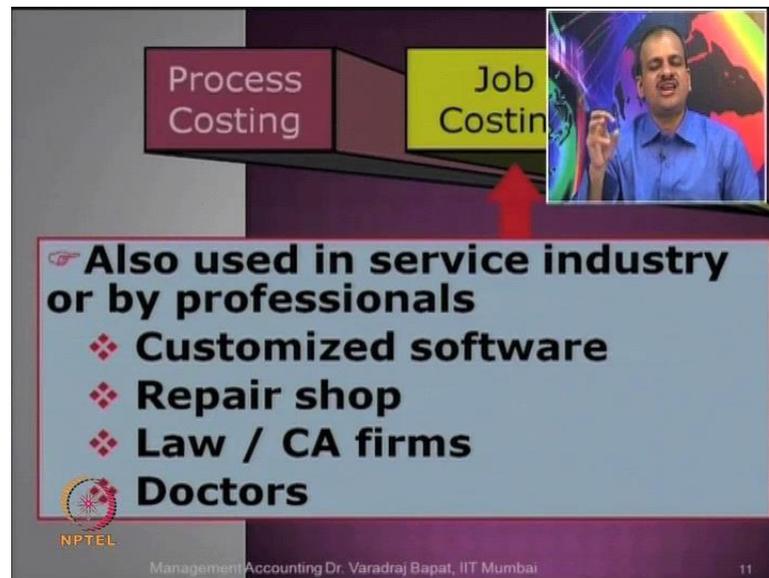
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The slide features a 3D-style header with two boxes: 'Process Costing' in a purple box and 'Job Costing' in a yellow box. A red arrow points from the 'Job Costing' box down to the main content area. In the top right corner, there is a small video inset of a man in a blue shirt. The main content area has a light blue background with black text. At the bottom left is the NPTEL logo, and at the bottom center is the text 'Management Accounting Dr. Varadraj Bapat, IIT Mumbai'. The slide number '10' is in the bottom right corner.

These are the example of typical job costing applications. So, you have special order printing building construction designer costumes tailor made garments or we also talked about...

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Professional services like: customize software repairing, doctors, lawyers, chartered accountant they are all in the nature of job costing. Can you give some examples of job manufacturing and batch manufacturing? Both are within the overall domain of job costing but there is a slight difference. So, can you think of the 2 say you want get some furniture for your office what method of costing will be suitable in your office or let us say you are in college. So, college wants benches in the classroom. So, which method will be used for the supplier will use which method for this type of supplier benches in classroom actually different possibilities exist 1 is process costing.

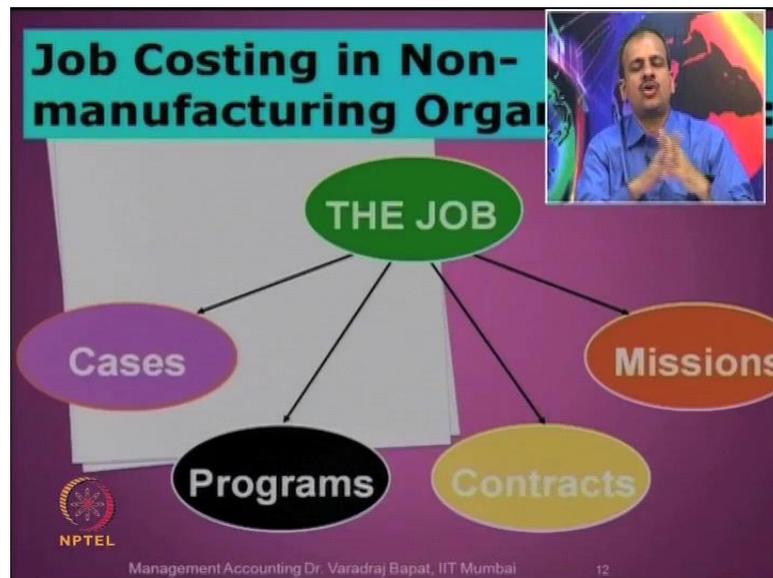
So, you go to a carpentry shop they may have certain modules of benches ready and just pick up the module and order them like a readymade garment. So, that will be an example of process costing it is not being produced to that classroom. But, they may have different varieties just pick up the suitable variety and order say it 20 benches for that classroom that is 1.

Second, it could be batch manufacturing so you want specific type of benches you give a specific order for 20 benches. So, instead of making 1 bench they are making 20 or 50. So, similar products but not as large as in process costing they are still being made for

the customer order built only but slightly bigger lot than job costing. And job costing scenario follows where you just want 1 or 2 pieces.

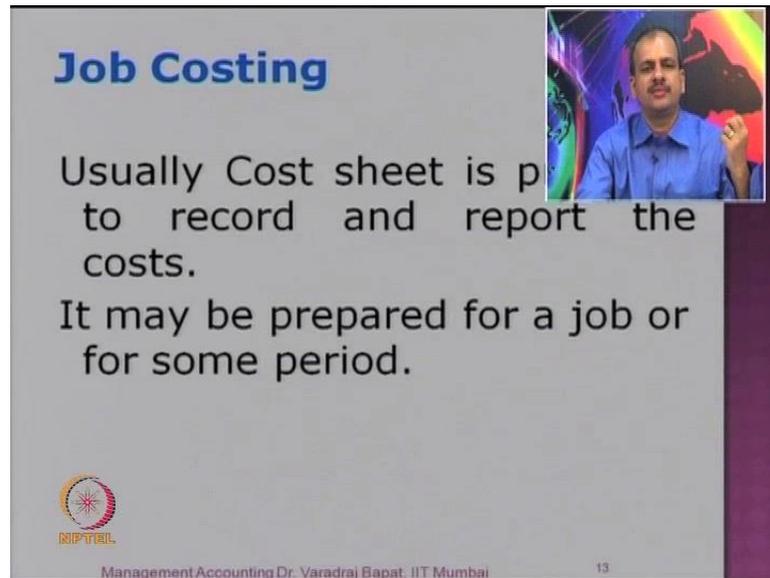
So, if you only want let us say some furniture's suitable for your living room or in your house perhaps. You may hire some interior decorator and as per your specifications carpenter makes the furniture it becomes a case of job manufacturing are you getting. So, these are the various methods now.

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This is 1 case where in non manufacturing scenario is the job manufacturing is used for making up programs contracts missions they are customized. So you have to use job costing.

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Job Costing

Usually Cost sheet is prepared to record and report the costs.
It may be prepared for a job or for some period.

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The slide features a title 'Job Costing' in blue. Below it, two lines of text explain that a cost sheet is used to record and report costs, and it can be prepared for a specific job or a period. A small video inset in the top right shows a man in a blue shirt speaking. At the bottom left is the MPTEL logo, and at the bottom center is the text 'Management Accounting Dr. Varadraj Bapat, IIT Mumbai' with the number '13' on the right.

Now, before going for further part what is a advantage or disadvantage of job and process costing. Can you think of the advantage in process costing? What happens, it is a mass produce so relatively the cost comes down it is not for 1 customer. Secondly, the costing becomes easy because there is no 1 to 1 link you just account for the inputs than you get the total cost. You can divide by the outputs to get the cost per unit of the output in process costing we are going to see it.

In job costing, what happens is you have 1 particular job which is different from other jobs. So, the inputs is going to that particular job have to separately accounted take total of all those inputs you will know the job cost. But, you will have to do it 1000 times if you are done 1000 jobs in process costing, what happens is even if you produce 1000 units which are identical you just take the total cost divided by 1000. You get the cost per unit.

So, we will now look first at the job costing now the job costing as we have discuss every job is identifiable separate and unique. So, we have to calculate and record the inputs for each job and report them usually this reporting is done in a cost sheet format. So, for 1 job or for 1 contract a cost sheet is produced all the cost are identified or a portion they are added you get the cost sheet. So, cost sheet can prepared for a job. Sometimes it is prepared for a particular department or sub unit for particular period both is possible here is format of cost sheet.

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Particulars	Total Cost
Direct Material	
Opening Stock of Raw Material	
Add: Purchase	
Less: Closing stock of Raw material	
Direct Labour	
Direct Expenses	
Prime Cost	

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Now, you know these items like direct material direct labour and direct expenses. So, in cost sheet we try to calculate you have particular job in mind or you may have some month for which you are accounting for the cost .So the first cost is direct material direct material cost is mainly the raw material. So, you take opening cost add purchases minus the closing stock of the raw material that because the raw material consumed in that period. It is a direct material cost plus direct labor plus direct expenses the total is known as prime cost. This is called as prime cost because you are able to identify those cost to that particular job. So, that is first cost.

Next, what will be the cost involved for a job after prime cost? What are the other cost other than the direct cost? Just now, we have discussed them that is indirect cost or they are known as overheads. So, based on some estimates those overheads will be charged because they cannot be directly linked but you will calculate say 75 percent of direct labor cost as it was done in the last case. Or say 2 rupees per machine hour using some bases the overhead costs are also charged to job.

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Particulars	Total Cost
Add: Factory Overheads	
Works Cost	
Add: Opening Work in Progress	
Less: Closing Work in Progress	
Factory Cost	



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So, now after prime cost first factory overhead start charged. So, you get the total which is known as works cost in this works cost opening and closing work in progress is added and reduced because there could semi finished goods in the factory. So, works costs add opening less closing stock of work in progress you get the factory cost.

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Particulars	Total Cost
Add: Office and Administration Exp	
Cost of Production	
Add: Opening stock of Finished Goods	
Less: Closing stock of Finished Goods	
Cost of goods Sold	



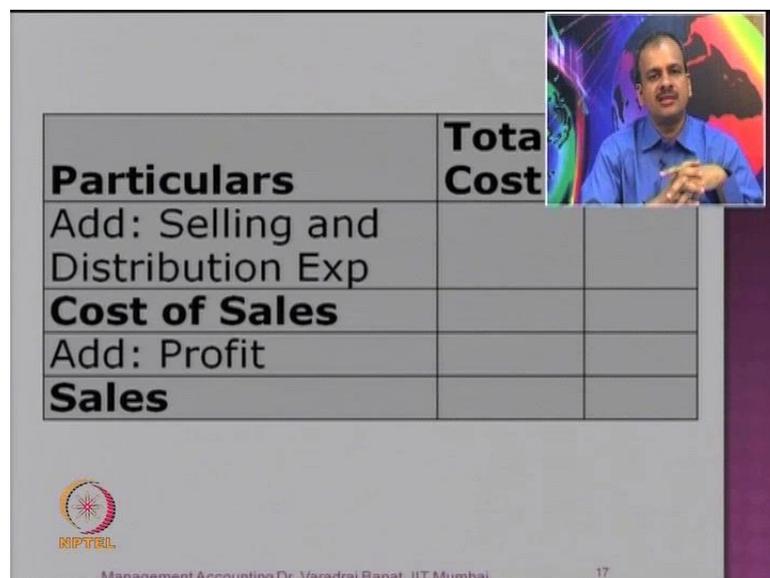
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To the factory cost we add office and admin expenses which gives us cost of production at the level of cost of production the finished goods stock is valued. So, you can add opening stock of finish goods minus closing stock of finish goods you get cost of goods

sold. I hope all these terms are clear getting clear to you I will just go back. So, we started from prime cost you know that you classify direct and indirect cost. So, direct cost totally is known as prime cost then indirect cost or the overheads are classified usually as per function.

So, you have factory admin selling expenses extra so first add factory expenses then adjust per work in progress which will give you what is known as factory cost. Then add an office overhead which gives cost of production then adjust for opening and closing finish goods. So, you get cost of goods sold to this we need to add selling and distribution expenses.

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Particulars	Total Cost
Add: Selling and Distribution Exp	
Cost of Sales	
Add: Profit	
Sales	

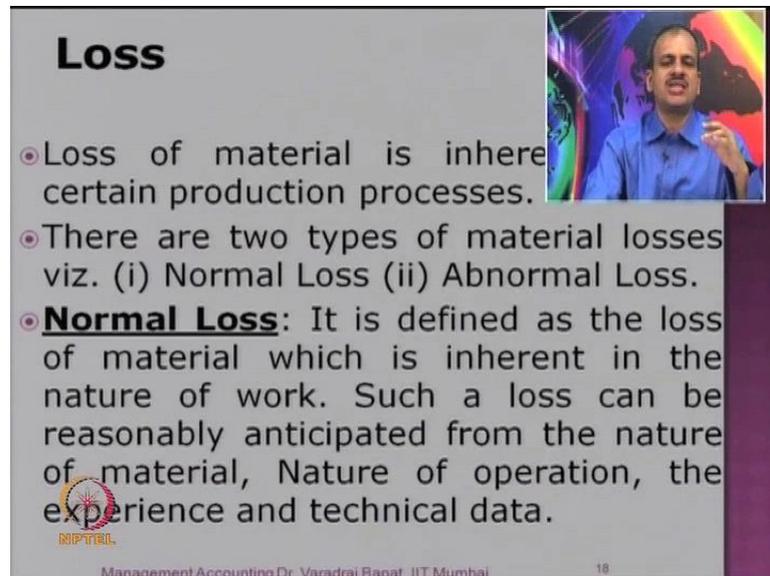
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So, we get what is known as cost of sales profit is added to get the selling price or sometimes we have cost of sales we know the sales price from the market. So the difference is calculated as profit or loss. Of course, this profit or loss is different from the profit and loss account which we have discussed in the financial accounting. In financial accounting it is total for the whole company. Here, we are doing it for 1 product or for 1 division for a particular month. So, is it clear now? Usually all the job costing is done through cost sheets.

So, cost sheet is 1 of the very important statements used for reporting the cost it is also used as we discuss for a department or cost centre or for a unit for which all the costs are

added to calculate the profit or loss. Now, we will go into the second type of costing that is process costing we have discussed about job.

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Loss

- Loss of material is inherent in certain production processes.
- There are two types of material losses viz. (i) Normal Loss (ii) Abnormal Loss.
- **Normal Loss:** It is defined as the loss of material which is inherent in the nature of work. Such a loss can be reasonably anticipated from the nature of material, Nature of operation, the experience and technical data.

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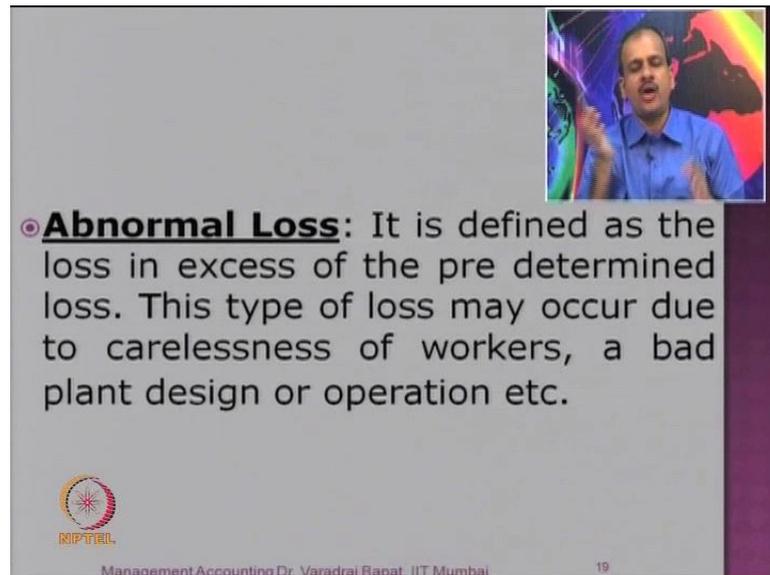
Now, let us discuss about process before accounting for a process costing we should have some idea for accounting for losses. Because, many times what happens is there are some inherent losses in the production process. Then they are required to be classified and properly treated before going for further discussion. Can you think of such inherent losses can you give some examples like certain materials or certain process. There is some loss which always happens in a production can you give some examples.

Can you give some examples of processes which involve which inherent losses? 1 immediately coming to mind my mind is petroleum products you know that, petroleum products are typically evaporating. So, if you are doing anything with petrol diesel or such products 1 are 2 percent of it may just evaporate. So, that is 1 normal loss or in machining processes say you are operating on a lathe some part of the material will be lost or even more simple examples. Let us see, you are doing tailor is making cloths that garments from the cloth you cannot use the whole of it in the cutting process some cloth will be lost.

So, in every process almost there will be some losses. Now, how to treat those losses becomes very important, because it is necessary for the costing system to decide whether these losses can be charged to the customer or they have to be borne by the company. So,

the losses are classified into 2 types normal and abnormal. In case of normal losses what happens is there inherent to the process. So, very nature of operations required that there will be some loss they can be reasonable estimated through experience. And through technical data and such losses can charged to be customer as again this there are abnormal losses which happens because of uncertain reasons.

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◉ **Abnormal Loss:** It is defined as the loss in excess of the pre determined loss. This type of loss may occur due to carelessness of workers, a bad plant design or operation etc.

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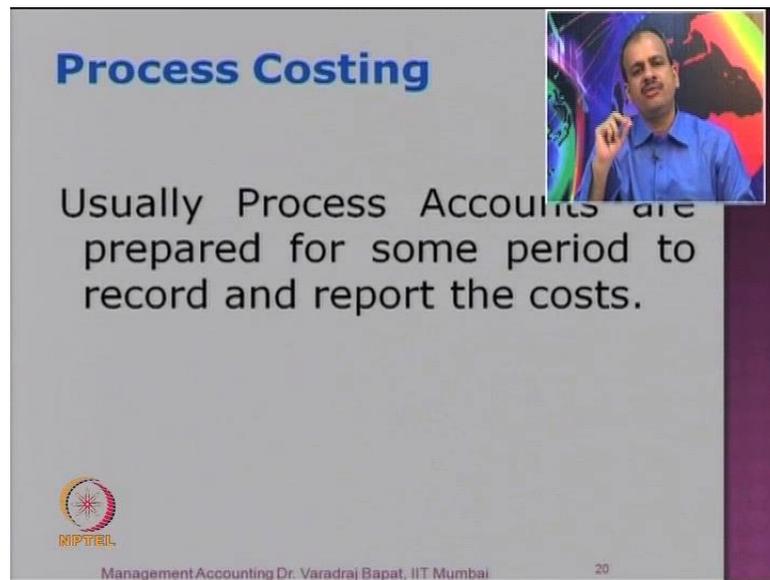
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So, actual loss when exceeds the normal it is due to abnormal losses may be workers careless, there is a wrong design which causes more loss. Then what should have been normal loss? So, can you charge the customer with abnormal loss naturally you cannot it is because of companies carelessness you cannot blame the customer.

So abnormal losses as to be borne by the company normal losses gets charge to the customer. So, for example, you go to the tailor you are charged for the whole cloth there will be some cutting in the tailoring process naturally. The customer has to bear but if the whole cloth is destroyed because of careless of the tailor then tailor will have to compensate the customer; because that loss is abnormal.

Similarly, in petroleum products let us say there is 3 percent loss that is not normal but if there is some fire there, it is because of carelessness that has to be borne by the company. You cannot tell the customer that there was fire. So, we will not deliver you. So abnormal and normal losses have to classified and then accordingly treated.

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Process Costing

Usually Process Accounts are prepared for some period to record and report the costs.

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The slide features a title 'Process Costing' in blue. Below it, a text block explains that process accounts are prepared for a period to record and report costs. A small video inset in the top right shows a man in a blue shirt speaking. At the bottom left is the MPTEL logo, and at the bottom center is the text 'Management Accounting Dr. Varadraj Bapat, IIT Mumbai' and the number '20'.

Now, in process costing we will go for a recording part, we have just now seen that a cost sheet is typically prepared in a cost job costing scenario in process costing instead of cost sheet usually the process accounts are prepared. Now, what is difference in a cost sheet? It may be for job in processes is there is nothing like 1 identifiable job accounting has to be for a particular period.

Let us say, you are making steel you are not making 1 kg or you are 1 ton of steel you are making 100s of tons in a common process. So, essentially you calculate the cost for a week or a month and divide it for numbers of tons made to get the cost per ton are you getting me. So, reporting is of the process account I will give you 1 more example in the soap manufacturing. Can you make 1 piece of soap that is 1 small cake of soap? No, you will calculate the cost for the month and you will divide it by the number of soap cakes produced. So that, you get the cost per cake so reporting of cost happens through process accounts.

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Process Costing

The cost of each comprises the cost of:

1. Direct Material
2. Direct Labour
3. Direct Expenses
4. Production Overheads



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In 3 each process accounts typically this cost are charged same like in job costing you have direct material direct labor, direct expenses, some production overheads. Only difference is here it is period wise in job costing many times will be job wise.

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From the following data process a/c of 1, 2 and 3
The output of each process treated as input for next process. Direct Costs are:

	Pr 1	Pr 2	Pr 3
Material	70000	15000	30000
Wages	38000	40000	25000
Expenses	11000	12000	15000



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Now, let us take 1 case to make it more clear to you now these are the cost for the 3 processes. You have process 1 process, 2 process, 3 that direct cost they are directly allocated. So, they have been estimated that is material labor and expenses.

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Factory overheads of Rs 4000 are to be apportioned on the basis of wages paid. There was no opening or closing stock. 15000 units have been introduced in 1st process and the output and normal loss for each process are as follows:



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Now, factory overheads are 4000 and they are to be charged on the proportion of wages paid on 15000 units. They are putting in the first process and then it goes out this is the output and normal loss estimated for the process.

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	Output	Normal Loss
Process 1	14550	3%
Process 2	13500	6%
Process 3	13300	2%



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So, for process 13 percent process, 26 percent process, 32 percent these are the normal losses by technical estimates. But, the actual output is given as 14550 13500 and 13300 you are required to make process accounts. I will go back, just think over how will you get the cost per kg or per unit? It was 15000 units have been produced process put in for

the processing. Then, at the end of process 1 you got 14500, at the end of the process 2 you got 13500, at the end of the process 3 you got 13300 which is your final output.

Naturally, you want to know what the cost per unit is. Now how to calculate can you think of it how you will get cost per unit each unit is not identifiable. So, no purpose of making separate cost sheet for 1300 13300 units, you will have to make 13300 cost sheets in job costing; which you would not need now you will just make few accounts. So, how will you get the cost can you think of 1 very simplistic way is simply add all the cost, add all material wages, expenses plus overheads and divide it by 13300. You will get some cost per unit it can be done.

But, it does not give you real proper analysis, because we want to know the cost of process 1, process 2 and process 3 separately. You want to control the cost for each process you may also want to take a decision of outsourcing sometimes. So we want to know precisely the cost for every process and then the final cost that is why typically process accounts are produced. So, can you think how the process accounts will be produced? So, we will make 3 process accounts we will make 1 for process 1, then for process 2 and then for process 3. And then the relevant cost for each process will be accounted for. Is it clear?

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Solution

Process 1 A/c

Particular	Units	Total Cost	Particular	Units	Cost
Material	15000	70000	Normal Loss	450	0
Wages		38000	Transfer to Process 1	14550	133757
Other Expenses		11000			
Factory Overheads		14757			
	15000	133757		15000	133757

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Now, let us see the accounts as they might be prepared so in process 1 account as you know material cost was 70 wage cost was 38 and other expenses were 11. They were

already identified and they have been charged to process 1 account. Is it clear to you? If want I will just go back from here this cost were picked please concentrate on process 1 right. Now, 70 30 8 and 11 , so they have been charged first material wages and other expenses.

Now, let us go to factory overheads. For factory overheads, it was given that they should be charged on the basis of wages now the wage cost as you can see is 38 40 and 25. Now, proportioned basis the factory the factory overheads have been charged to process 1 at 14757. Let us see, you can do the calculation it is in the ... So you have got material wages other expenses and factory overheads giving you a total cost of 133757. If you look at units there was a input of 15000 units which was given to you in this slide right.

Now, what is cost per unit look at the output and the normal loss then the normal loss is 3 percent and the output is 14550. So, what we have done is first we have calculated the normal loss at 3 percent 3 percent of 15000. So, 450 cost how much is a cost of normal loss right now 0, because we have to charge this cost to the customer. Nothing will come on the credit side of the account we will not get anything from normal loss. So, in the cost column we will write 0 transfer to process 2, it should have been process 2 now this is process 1.

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Process 2 A/c			
Particular	Units	Total Cost	Particular
Transfer from Process 1	14550	133757	Normal Loss
Material		15000	Abnormal Loss
Wages		40000	Transfer to Pr2
Other Expenses		12000	
Factory Overheads		15534	
	14550	216291	



Actually, it should be process 2 from process 1 the items are going to process 2. So, transfer to process 2 comes to 14550 which was given over here that is the output right.

So entire cost of 13757 has to be charged to units 14550, So, 13757 upon 14550 will be the rate per unit at the end of process 1 is it clear to you now whole process account. In this case, there was how much was abnormal loss 0 because 3 percent means 450 at 15000 minus 450; exact output is 14550. So, there was no abnormal loss in process 2 there could be abnormal loss look at the figure for process 2.

In process 2, the input is 14550 the output is 13500 and the estimated loss is 6 percent. Now, let us look at process 2 account now on the side of cost first for 14550, we have charged 1 133757 which comes from process 1 no problem. Then material wages other expenses are just charged you know this figures were ready and we have just charged you 15014 40000 and 12000.

So, no issues factory overheads have been also proportionated look at the other side now, the normal loss is taken at 6 percent. Then you have to calculate the abnormal loss which comes to 1 77, because the units transferred are 13500 the balance becomes the abnormal loss. So, the total cost of the process which you can see here is 2 1 6 2 9 1 has been proportionately charged, as normal abnormal loss and as transfer to process 3.

So, will stop here, because time is up; next time again will look at process 1 2 and 3. To do very brief recap, we have seen that 2 major methods: job costing, process costing. In job costing, it is identifiable relatively small quantum of output made for specifically for customer; we make a cost sheet for the same. In process costing it is a mass production the output is for inventory not for a customer. And we make process accounts for it so that, we make cost per unit. In next session will discuss more about it.

Thank you so much.