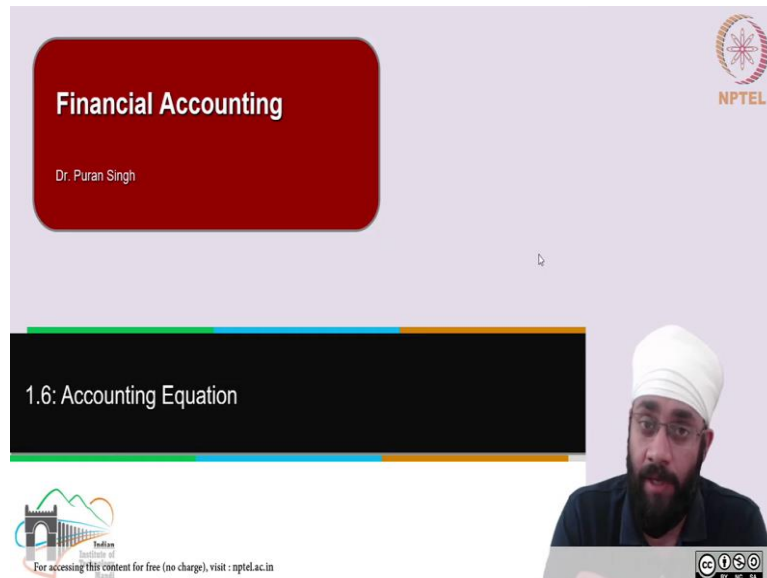


Financial Accounting
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Lecture – 7
1.6 Accounting Equation

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The screenshot shows a video lecture interface. At the top left, a red rounded rectangle contains the text "Financial Accounting" and "Dr. Puran Singh". At the top right is the NPTEL logo. A black horizontal bar in the middle contains the text "1.6: Accounting Equation". At the bottom left is the IIT Mandi logo with the text "For accessing this content for free (no charge), visit : nptel.ac.in". At the bottom right is a small video inset of a man with a beard and glasses wearing a white turban. Below the video inset are Creative Commons BY-NC-SA icons.

In this video, I am going to introduce you to the concept of Accounting Equation. This equation is the basis of the double entry system. Based upon this equation, the whole scientific method of recording, classifying and summarizing the business transactions is done.

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The slide is titled "Contents" in red text at the top left. It features a table of contents with four items: "1.6.1 What is Accounting Equation?", "1.6.2 Working of Accounting Equation", "1.6.3 Example: Accounting Equation", and "1.6.4 Summary". Each item has a red checkmark to its right. In the top right corner, there are two logos: the Indian Institute of Technology Mandi logo and the NPTEL logo. In the bottom right corner, there is a video inset of a man with a beard and glasses, wearing a white turban and a dark blue shirt, speaking.

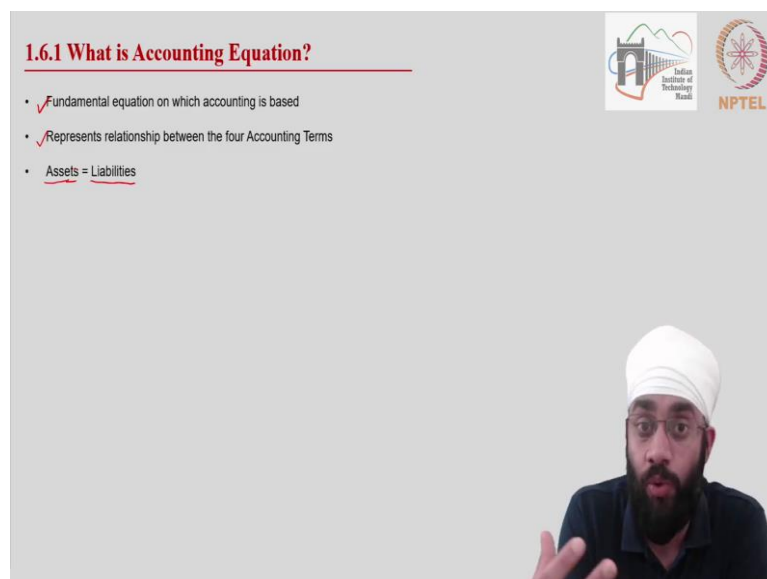
Contents

- 1.6.1 What is Accounting Equation? ✓
- 1.6.2 Working of Accounting Equation ✓
- 1.6.3 Example: Accounting Equation ✓
- 1.6.4 Summary ✓

So, let us look at the contents of this discussion. I will talk about what is the equation, I will tell you how it works, and we will do an example, and then I will summarize the importance of this equation.

Now, all you need to know before you go through the accounting equation are the 4 concepts, 4 key terminologies of accounting which are assets, liabilities, incomes and expenses. So, make sure that you are well versed or you have a good grasp of what our assets, liabilities, incomes and expenses are and then go through the accounting equation.

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The slide is titled "1.6.1 What is Accounting Equation?" in red text at the top left. It features three bullet points: "Fundamental equation on which accounting is based", "Represents relationship between the four Accounting Terms", and "Assets = Liabilities". Each bullet point has a red checkmark to its left. In the top right corner, there are two logos: the Indian Institute of Technology Mandi logo and the NPTEL logo. In the bottom right corner, there is a video inset of the same man from the previous slide, wearing a white turban and a dark blue shirt, speaking.

1.6.1 What is Accounting Equation?

- ✓ Fundamental equation on which accounting is based
- ✓ Represents relationship between the four Accounting Terms
- ✓ Assets = Liabilities

So, as I said, this is a fundamental equation. All the books of accounts are going to be prepared based upon this equation. And this equation represents the relationship between the 4 terms, assets, liabilities, incomes and expenses. What is the equation? The equation is that assets are equal to liabilities, and this is nothing new.

In the previous video, I showed you that assets and liabilities are equal using the sources of funds under liabilities, you purchase the long-term assets that you have. So, the equation holds. So, all we are going to do in this video is establish your faith in this equation, help you understand more of how this equation is going to hold right.

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The slide is titled "1.6.2 Working of Accounting Equation". It contains the following text:

- Incomes and Expenses work in the background
- Assets and Liabilities work in the foreground
- Assets = Liabilities

Handwritten notes in red ink are present:

- A box around the equation $L = A$ with an arrow pointing to it and the text "Acc Equation - foreground".
- A box around the equation $I - E = P$ with the text "background" below it.

The slide also features logos for the Indian Institute of Technology Mandi and NPTEL in the top right corner. A video feed of a man wearing a white turban and glasses is visible in the bottom right corner of the slide.

So, in this equation, you see that assets and liabilities are in the foreground. This is what you see. However, the other two terms are incomes and expenses; they are going to be functioning in the back end. For example, you saw in the previous video where we are using liabilities to fund your assets, and then using assets you are going to generate the income, out of which you will pay your expenses which will result in profit, and this profit is going to be channeled back into the company, and more assets can be bought and so on.

So, the expression *Assets = Liabilities* is the accounting equation. And the other equation that you have for profit basically channels inputs into the liability side of the accounting equation. So, that is what I meant when I said the accounting equation is on the foreground and this is the background of the accounting equation.

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1.6.2 Working of Accounting Equation

✓ Loan raised 100

Assets	=	Liabilities
Bank balance	=	Loan
100	=	100

Let us move forward and look at the working of the accounting equation. So, the equation is assets equals liabilities. And all we have to do is to establish that this equation holds no matter what transaction takes place in the business: that is the meaning of the equation it should stay equal.

Take for example, loan raised- if the company raises a loan means goes to the bank and takes a loan what happens? When a loan is raised, we know the loan is a liability, we discussed that earlier. So, on the liability side, there is going to be the name of the liability that is the loan we have taken. And if the amount is given to you let us say 100. So, there is a new liability which is equal to 100, suddenly the equation is not equal because there is something on the liability side, nothing on the asset side right.

But what happens when you take the loan? You have to return the money to the bank, but before that, the bank deposits the money in the company's bank account. So, the company's bank account becomes the company's bank balance. And bank balance, as we all know, is an asset. So, on the asset side you are going to have an asset called bank balance. Bank balance is going to be 100 as well. Therefore, the accounting equation holds.

After the transaction of raising the loan, there is a new liability which is getting created, and there is an asset which is getting created. Again reemphasizing the point that using the liabilities (which are sources of funds) you fund your assets: we raise the loan and now we have money in the bank account.

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1.6.2 Working of Accounting Equation

✓ Land purchased

Assets		=	Liabilities	
Land	Bank			
50	- 50			



Let us look at another example. What happens when you purchase the land? Now, you have got the money in the bank account, we use the same money to purchase land. When land is purchased, the company owns new land, land has a value. So, there will be a new asset which is called land. So, if 50 is spent on land, then the value of the land is 50. And suddenly the equation is unequal: you have 50 on the one side and nothing on the other side. However, when you purchase the land, the title of the ownership of the land is going to be transferred to the company only when you transfer the money. That means you will spend the balance in the bank account. So, the bank balance is reduced by the same amount, and thus, the equation holds. There is nothing on the liability side, but that is ok.

You purchased land and you paid for it. You paid from the bank balance. Bank balance was also an asset; land is also an asset. You are converting one asset into another asset, so that is how the accounting equation again is going to hold even after the purchase of land.

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1.6.2 Working of Accounting Equation

Income from Sales

Assets = Liabilities

Cash +20 = Shareholders Fund +20

Income - Expenses = Profit

20 - 0 = 20

Another example, income from sales - you sell goods and you make money. So, what happens when you sell goods? The money is going to come in your bank account or you get cash. Let us assume cash. So, if the company is going to get cash, then let say 20 plus more cash. So, the balance of the cash in hand that goes up, you have 20 more. Now, what is the other impact of this transaction? We know that from income from sales there are two things which are getting affected, you are getting an income and you are getting cash. The name of the income is sales right.

So, the sale is an income. And we know that the accounting equation only has assets and liabilities in the foreground. In the background, it has income and expenses. And then you are going to have profit. And profit is going to you know feed into the liabilities as discussed earlier income minus expenses. So, from this transaction, you have a new income of 20. So, this cash is getting reflected here. However, this income is going to reflect in the other equation which is the profit equation.

So, you have income and right now in this transaction we do not have any expenses, I am going to write it as 0, and 20 profit which means that this profit is going to get added into the liabilities. And the profit belongs to the shareholders who have brought the money in the business. So, the shareholders funds will go up by 20 by adding the capital brought in by profit. That is how the accounting equation still holds after an income entry.


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1.6.2 Working of Accounting Equation

(Expense)
✓ Salaries paid 10

Assets	=	Liabilities
Cash		Shareholders fund
-10		-10

Income - Expenses = Profit
0 - 10 = -10



The slide features the logos of the Indian Institute of Technology Madras and NPTEL in the top right corner.

Let us look at another item, salaries that you are paying. Let us say salaries paid 10, what happens to the accounting equation? Now, salaries paid are expenses. Expenses are not accounted for in the accounting equation. However, there is a background profit equation income minus expenses equal to profit; this is where all the expenses are factored.



So, according to this transaction, no income is being made right now, but expenses are being paid, so you have a negative profit or loss. And this profit is going to feed into liabilities which means there will be a minus 10 in the shareholders' fund; at the same time the expenses are going to be paid out of the cash balance or the bank balance of the company. So, I am going to write cash here. And out of the cash, you pay this 10. The accounting equation holds again after this transaction.

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1.6.3 Example: Accounting Equation

- ✓ Shareholders invest INR 100 million in the business
- ✓ Borrowed from bank INR 50 million for business
- ✓ Purchased office building worth 10 million, storage facility worth 20 million
- ✓ Purchased stock of goods worth INR 40 million (50% on credit)
- ✓ Sold goods worth INR 20 million (50% on credit)
- ✓ Office expenses INR 5 million
- ✓ Paid salaries INR 5 million
- ✓ Paid bank loan installment INR 10 million

Assets	=	Liabilities
+100 +50	=	+100 +50
-30 +10 +20	=	+40 +20
-20	=	-20 +10
+10	=	-5
-5	=	-5
-5	=	-10
-10	=	-10

So, we saw a bunch of items, and we saw how the accounting equation is not getting affected. It is always equal assets and liabilities are affected in the same way. I have a bunch of transactions again, 8 transactions with some more details, some more complexity let us go through these and prepare the accounting equation.

So, shareholders invest 100 million in the business. What happens? Shareholders are bringing money into the business, clearly money is coming in. So, you have bank balance which is going up. So, on the asset side, I am going to write bank balance, this goes up by 100 plus 100. At the same time when shareholders bring in money, there is a new liability which is called shareholders funds, shareholders capital. So, I am going to say plus 100 in this case. So, the accounting equation holds.

The next transaction is- borrowed from the bank 50 million for business. This is a loan that you take from the bank. When you take a loan from the bank, again the bank balance goes up by 50, and there is a new liability called loan from bank, and this is also 50. There you go, the accounting equation again has 150 on one side, 150 on the other side. Then you have purchased an office building.

Now, you used this money to purchase some assets. You purchase an office building worth 10 million, and the storage facility worth 20 million; two types of assets are being purchased. Now, office building I am going to write it here. So, I have just put it in short- building, and the other one is storage. So, I am purchasing an office building worth 10. So, the value of assets

goes up: building worth 10 and storage worth 20. However, I am going to pay for these two facilities as well. So, 30 million has to be paid. How do I pay for it? I pay it out of my bank account, there you go. And no impact on the liabilities side for this transaction. Then you have to purchase stock of goods worth 40 million, and 50 percent of this is on credit. On credit means you do not pay for it, you will pay for it later. When you are purchasing stock a new kind of asset is getting created which is unsold stock. Unsold stock is your asset. So, I will write it here- stock. And 40 million worth of stock has been created in the accounting equation. Now, you have to pay for it, but you paid in cash only half of it. So, half of it is 20. I paid through my bank balance and the remaining 20 is what I am going to pay later. So, whenever you have an overdue amount which you will pay, it becomes a liability. So, there is a new liability, and I am going to call it *creditor*, the formal word in the language of accounting for our vendors or to whom we have to pay. So, creditors worth 20 million are created on the liability side. Now, what happens, you have minus 20 and plus 40 on the asset side, which is a net effect of plus 20, and an equal plus 20 on the liability side. So, the accounting equation again holds.

Transaction 5 is sold goods worth 20 million and you have 50 percent on credit. Now, you sold goods. When you sell the goods, the stock goes down. So, the stock is going to go down by 20, and you sold goods worth 20, and 50 percent on credit. Now, you receive 50 percent of the amount in cash. The bank account, I keep saying cash but let us assume everything is through the bank account, increases by 10 million. However, the remaining 50 percent, which is another 10 million, does not come to you; you have to recover this amount from your customers. So, you have recoverables. I have less space here, and I am just writing receivables. Receivables, we could also call it as debtors, is the opposite of creditors, you have to recover money from the customers. So, you have to recover from customers plus 10, because 10 we have already received and 10 has to be recovered against a value of 20 million of stock which was sold to your customer.

Next is, office expenses – paid 5 million. Now, this is an expense item, not an asset item, not a liability item. This is an expense item. When you pay an expense, you pay out of your bank account, so minus 5. And we know any expense reduces the profit, and hence it reduces the shareholders funds. So, I am going to do a minus 5 on shareholders funds. There you go.

Transaction 7, you pay salaries. When you pay office expenses or you pay salaries, it is an expense. Again, I am going to pay it out of the bank account first of all, and then I am going to

reduce it out of the shareholders funds because any expense is going to reduce the profit which reduces shareholders funds.

And then we have transaction 8, where you pay the bank loan installment of 10 million. When you pay the bank loan installment the loan amount goes down by 10. And on the other hand, you pay this out of the bank balance that you have, again equal amount being deducted on both sides of the accounting equation. So, this is how the accounting equation works, no matter what the transaction is, it is going to affect one or both sides of the equation in such a way that equation is always going to hold.

And at the end of these 8 transactions, you have 5 different assets, and 3 types of liabilities. What is the total, you know what is the final money left in the bank account? Well, you just can sum this up and figure out the balance in the bank.



What is the value of the building? 10, what is the value of the stock sorry storage unit? 20, the value of the stock you are left with is 20 million. What is the amount of the recoverable from the customers that is 10? What is the shareholder fund? That is 100 minus 10 which is equal to 90. A loan was taken of 50, you paid 10 and are left with 40 to be paid; creditors worth 20. So, at the end of the transactions, you are able to see the balances in various assets and liabilities, the value of assets and the liabilities to be paid.

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1.6.4 Summary: Accounting Equation

1. All assets purchased

	Assets		=	Liabilities
On cash	+Asset	-Cash		
On credit	+Asset			+Payable



Let us quickly move to the summary of this exercise. The idea is that you know asset, liability, income, expense: these 4 items are going to be involved in every transaction. And if we understand the rule for these 4 types or 4 terms, the rule using which you write it in the accounting equation, then it will become easier for us.

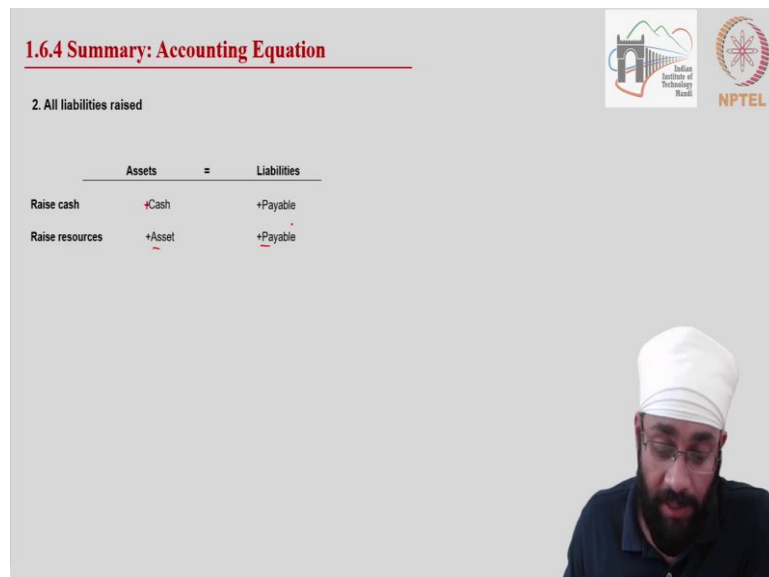
So, let me conclude by saying if any asset is purchased on cash, then the asset goes up and cash goes down. However, if the asset is purchased on credit, you will have asset going up and instead of cash going down, you will have a liability- a payable amount on the liability side that is true for any type of asset.

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1.6.4 Summary: Accounting Equation

2. All liabilities raised

	Assets	=	Liabilities
Raise cash	+Cash		+Payable
Raise resources	+Asset		+Payable





For any liabilities that you raise if you get cash for it, then you have cash- cash will be going up for this and liability will also go up. And if you raise any resources instead of cash, you get an asset and you have a payable against it: that is also possible, another way of raising a liability.

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1.6.4 Summary: Accounting Equation

3. All expenses paid

	Assets	=	Liabilities
In cash	-Cash		-Shareholders' funds
Due			-Shareholders' funds + Payable





Then you have expenses. If you pay expenses in cash and cash goes down, and the shareholders' funds go down. If you do not pay it in cash, then the shareholders' funds go down, and there is a new liability that you have to pay.

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1.6.4 Summary: Accounting Equation

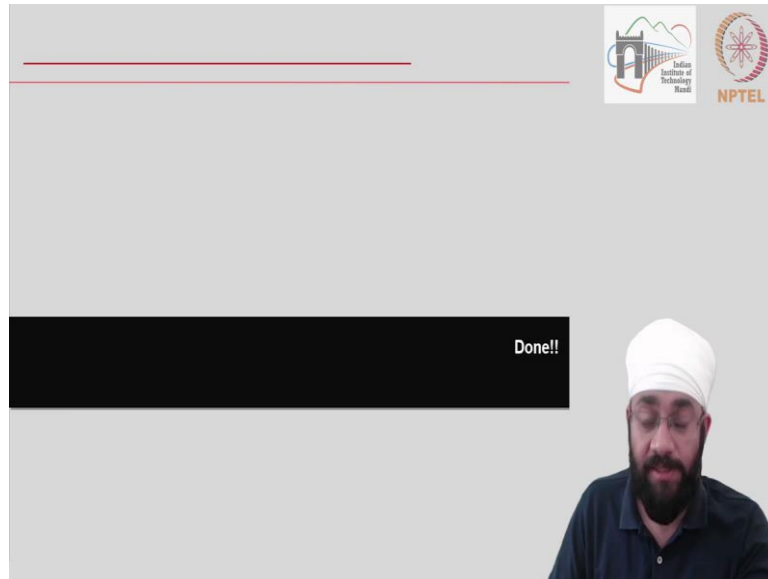
4. All incomes received

	Assets	=	Liabilities
In cash	+ Cash		+Shareholders' funds
Due	+ Receivable		+Shareholders' funds



Finally for the incomes- if you receive the income in cash, cash goes up, shareholders' funds go up. And if you do not receive it in cash, then the receivables, another asset, goes up, and shareholders' funds go up.

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So, that is how any transaction falls into one of the 4 categories: income, expense, asset, liability. And depending upon what it is, and whether it is cash, or credit transaction, it can be recorded in the accounting equation to see what is the final impact on the accounting equation.

I will see you in the next video.