

Welcome students to this video on Depreciation Accounting module #20 Unit 2 of Creating Business Spreadsheets.

In this video we will look at depreciation functions used in spreadsheets. Basically we will look at two different functions, straight line depreciation method function and the declining balance depreciation method function.

At the end of this video, the students will be able to calculate depreciation using an appropriate depreciation function that is either straight line or declining balance given the depreciation method to be used, depreciable basis, estimated useful life in years and estimated salvage value for a given asset.

Depreciation, the word depreciation has been derived from the Latin word 'depretium', which means decline in price or value. Depreciation relates to fixed assets which lose value on account of usage. Depreciation is a part of the operating cost. It is the reduction in the value of an asset. The decrease in the value of an asset is due to its use caused by wear and tear or any other reason. The decrease in the value of an asset is gradual and continuous. So in any business which has fixed assets, there is some amount of depreciation for these fixed assets.

When we want to calculate this depreciation expense, the assessment and allocation of this depreciation expense depends on the depreciable assets or original cost, estimated residual value, also called the salvage value and the expected useful life. Let us look at what each means.

The original cost is the cost of the asset which is purchased and it includes the payment to vendors, the transportation cost. If you pay some taxes to customs, the installation cost initial repairs to a second hand asset. If you're buying a secondhand asset, all this will come in original cost.

The estimated or residual value, also called the salvage value, it is the amount likely to be realized on the disposition of the asset as a scrap that is, at the end of the usage of the asset. When you give it for scrap, what is the amount that you are likely to get?

And finally, the expected useful life of a depreciable asset is the assets effective service which is normally expressed in period that is in years to the organization. How much useful is it to the organization for how many years? It is based on various factors such as physical potentiality of an asset, the maintenance required, magnitude of use, how often you use it, legal requirements, the policy of the firm.

Now let's look at the functions in spreadsheets, which can be used for depreciation. One of the methods used for depreciation, is the straight line method. The straight line method returns the straight line depreciation of an asset for one period. It is also known as a fixed installment method. The function in Excel for straight line depreciation is SLN and it takes three parameters Cost, Salvage and life as we already discussed, Cost is the initial cost of the asset, Salvage is the value at the end of the depreciation and life is the number of periods over which the asset is depreciated. Sometimes, it is also called as useful life of the asset. So let's learn straight line method using an example.

So let us assume that you purchase an asset for 1,56,000 which has tax at 3.5%. The shipping and installation cost given is 2780 and it will be used for six years and at the end of usage the salvage value is 32,000. Let us model this scenario in a spreadsheet.

Now here we have a spreadsheet in which we'll first calculate the taxes, so the tax is at 3.5%, so this is equal to the purchase price multiplied by 3.5% which will give you the tax value. We will add the shipping, and installation cost, purchase price and taxes to get the total value that is called the depreciable basis. That is the cost which the company incurred when it bought this asset. So we will sum this and we get the total depreciable basis. So at the beginning of the first year. The book value of the asset was In this cell, so we get the value here. Now we're going to find the depreciable expense using the straight line method. So for that we go to formula under financial formulas.

We move on to the SLN function. OK, so here we have the cost which is given in this cell. OK so I'm going to press. Function and F4 key so that I get an absolute reference to the cell. The salvage value is in the cell over here and the useful life is given in this C7 cell. Now Please note that I've used absolute values in all the cases because I want to drag the formula. To get the end of year book value, it will be equal to the beginning of the year book value minus the depreciation expense so this will give you the end of the year book value.

Now for the second year, the beginning value is what was the end of the year book value for the previous year, so I put that here and now I just drag this formula. Drag this formula here and drag this formula here. And you will notice that the entire thing has got filled up. Some formatting has gone away, so I'll just put back the formatting. You notice that the depreciation expense an end of year book value has been calculated for all the years, and another point to be noticed is at the end of the sixth year the salvage value is 32,000 which is the same as the salvage value over here.

So that was the straight line method for calculating depreciation. We now move onto the next method, which is fixed declining balance method, which is available in Excel. This returns the depreciation of the of an asset for a specified period using the fixed declining balance method.

In this method, again. It has not just three, but five different parameters. The first three parameters, Cost Salvage and Life are the same as the ones used for straight line method. Here you will see two additional parameters. That is the period and the month. The period is the period for which you want to calculate the depression and basically it refers to the year for which you're calculating the depreciation, and it should be in the same unit as the life. So our life that is useful life is in years. So the period should also be in years and month is an optional parameter, which is the number of months in the first year. It is omitted if it is assumed to be 12, so we're going to assume that it is 12.

So in this problem, the purchase price is 200000, taxes at 4.5%, the shipping and installation cost is 21,000. The useful life of this asset is 5 years and the salvage value is 25,000. Now let's model this situation again in a spreadsheet.

So we'll move to the spreadsheet. Declining balance, also called as written down value method, so here. Will calculate the taxes, which is again this multiplied by 4.5%. We calculate the sum and the initial book value is the total depreciable basis. Now coming to the depreciation expense. In the depreciation expense again, now we are using a different formula. So under financial we have the DB formula. The cost is given over here now. Note I'm using the absolute reference, salvage value is here, the life is in this cell and the period is the year for which you're calculating. Now here I'm not going to use the absolute value because as I drag, I want it to be calculated. So this will be equal to as before, beginning value minus depreciation expense. This is equal to, the previous year's end of book value, and we drag the values and your depreciation for each year is calculated. Notice that here it may not be exactly, but it's almost equal to the estimated salvage value. So this was the fixed declining balance method.

So in this video we saw the depreciation functions, two depreciation function, straight line method and the declining balance depreciation method.

These are the References.

Credits.

Thank you.