

# DEPRECIATION

## CONCEPT OF DEPRECIATION

**Property, plant and equipment** are tangible items that:

- (a) are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and
- (b) are expected to be used during more than a period of 12 months.

It is necessary that part of the acquisition cost of the fixed assets is treated or allocated as an expense in each of the accounting period in which the asset is utilized. The amount of fixed assets allocated in such manner to respective accounting period is called depreciation.

### Meaning of Depreciation

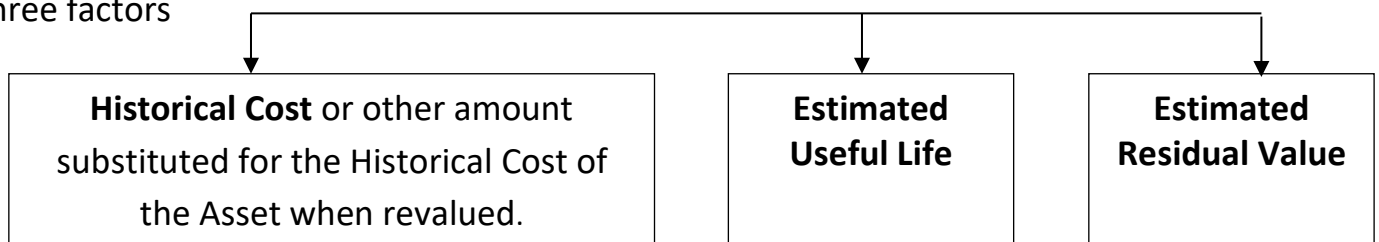
Depreciation is the systematic allocation of the depreciable amount of an asset over its useful life. Depreciation starts from the day asset is available for use.

### OBJECTIVES FOR PROVIDING DEPRECIATION

1. True cost of production
2. Income measurement
3. True Position Statement
4. Funds for replacement

## FACTORS FOR DEPRECIATION

Assessment of depreciation & amount of depreciation are usually based on the following three factors



These factors are explained as follows -

### 1. Historical Cost:

Purchase price	XX
Add : Other Non-refundable taxes & duties	XX
Add: Any directly attributable cost of bringing the asset to its working condition for its intended use	XX
Less: Trade discount & rebates	(XX)
<b>Cost of Asset</b>	<b>XX</b>

2. 'Useful Life' is either -

- (a) The period over which a depreciable asset is expected to be used by the enterprise, or
- (b) The number of production or similar units expected to be obtained from the use of the asset by the enterprise.

3. **Residual/Scrap Value** is the amount likely to be obtained by the disposal of the Fixed Asset at the end of its Useful Life.

### DEPRECIABLE AMOUNT

'Depreciable Amount' of a Depreciable Asset is determined as under -

Particulars	Amount
Historical Cost, or other amount substituted for it in the Financial Statements	XX
Less: Estimated Residual Value	(XX)
Depreciable Amount	XX

## METHODS OF DEPRECIATION

### 1. Methods Available:

The following methods are available for computing and allocating the depreciable amount of an asset over its useful life -

- ❖ Fixed Instalment or Straight Line Method
- ❖ Reducing Balance or Written Down Value (WDV) Method,
- ❖ Sum of Digits of Years Method
- ❖ Machine Hour Method,
- ❖ Production Units Method,
- ❖ Depletion Method,

### Method 1: FIXED INSTALMENT/ORIGINAL COST OR STRAIGHT LINE METHOD (SLM)

<b>Meaning</b>	<ul style="list-style-type: none"> <li>➤ Under this method, an equal or constant amount of depreciation is written off from Depreciable Asset every year.</li> <li>➤ Suitable for assets which generates equal utility during every year of its useful life.</li> <li>➤ At the end of the useful life of the asset, the cost of the asset will be NIL or equal to its Residual Value / Scrap Value.</li> </ul>
<b>Formula</b>	<p style="text-align: center;">Straight Line Depreciation = <math>\frac{\text{Cost of Asset Less Residual Value}}{\text{Useful Life}}</math></p> <p style="text-align: center;">SLM Depreciation Rate = <math>\frac{\text{SLM Depreciation}}{\text{Cost of Asset}} \times 100</math></p>
<b>Example</b>	<p>X Ltd purchased a Machine costing Rs 10 Lakhs, having a useful life of 5 years. Its estimated Residual Value is Rs 1 Lakh.</p> <p style="color: red; text-align: center;"> <math display="block">\text{Depreciation} = \frac{10L - 1L}{5} = 180000 \text{ p.a.}</math> </p> <p style="color: red; text-align: center;"> <math display="block">\text{Dep. Rate} = \frac{180000}{1000000} \times 100 = 18\%</math> </p>

## Method 2: REDUCING/DIMINISHING BALANCE/Written Down Value (WDV) METHOD

<b>Meaning</b>	<ul style="list-style-type: none"> <li>➤ Depreciation Amount for each year is computed by applying a fixed % on the Opening Balance of the Asset (i.e. Diminishing Balance of the Asset.)</li> <li>➤ Reducing Balance refers to the Written Down Value of the Asset, i.e. value of the asset as reduced by the depreciation upto the previous year.</li> <li>➤ The value of the asset will never be extinguished, as it happens in SLM Method.</li> <li>➤ Depreciation Rate is computed such that at the end of the useful life of the asset, the cost of asset will be equal to its Residual Value / Scrap Value.</li> </ul>
<b>Formula</b>	$\text{WDV Depreciation Rate} = 1 - \sqrt[n]{\frac{\text{Residual Value}}{\text{Cost of Asset}}}$ , where n = Useful Life.
<b>Example</b>	X Ltd purchased a machine costing Rs 10 Lakhs, and has ascertained its WDV rate as 10% p.a. Depreciation amounts for the first five years will be as under –

Particulars	Year 1	Year 2	Year 3
Cost / Opening WDV	1000000	900000	810000
(-) Depreciation	(100000)	(90000)	(81000)
Closing WDV	900000	810000	729000

## Method 3: SUM OF DIGITS OF YEARS METHOD

<b>Meaning</b>	It is a variation of the WDV Method. Under this method, Depreciation Amount for each year is computed by applying the following formula -
<b>Formula</b>	$\text{Dep.} = \text{Depreciable Amt.} \times \frac{\text{No. of years of balance useful life (including current year)}}{\text{Total of Digits of the Useful Life of the Asset (in years)}}$
<b>Example</b>	X Ltd purchased a machine costing Rs 78 Lakhs, having a useful life of 5 years, and estimated Scrap Value Rs 3 Lakhs. Depreciation amounts for the five years will be -

Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
Depreciation Amount for the year	$75 \times \frac{5}{15}$ $\Rightarrow 25$	$75 \times \frac{4}{15}$ $\Rightarrow 20$	$75 \times \frac{3}{15}$ $\Rightarrow 15$	$75 \times \frac{2}{15}$ $\Rightarrow 10$	$75 \times \frac{1}{15}$ $\Rightarrow 5$

Note: Depreciation is calculated on the Depreciable Amt, i.e. Cost less Residual Value

## Method 4: MACHINE HOUR METHOD

<b>Meaning</b>	In this method, Depreciation is computed based on the number of Machine Hours (rather than years). Where it is practicable to keep a record of the actual running hours of each machine, depreciation may be calculated on the basis of hours that the concerned machinery worked for. Under machine hour rate method of calculating depreciation, the life of a machine is not estimated in years but in hours. Thus depreciation is calculated after estimating the total number of hours that machine would work during its whole life
<b>Formula</b>	$\text{Dep.} = \text{Depreciable Amt} \times \frac{\text{No. of Machine Hours during the year}}{\text{Total Machine Hours during the entire useful life}}$
<b>Example</b>	X Ltd purchased a machine costing Rs 23,00,000, having a Scrap Value of Rs 2,30,000. The machine has a useful life of 20,700 machine hours distributed as under – <ul style="list-style-type: none"><li>• Years 1 to 3: 2,500 machine hours each,</li><li>• Years 4 to 6: 2,000 machine hours each, and</li><li>• Years 7 to 10: 1,800 machine hours each.</li></ul> In this case, Depreciation Amounts will be computed as under – $\text{Dep. (Yr 1 to 3)} = \frac{2070000 \times 2500}{20700} = 250000 \text{ p.a.}$ $\text{Dep. (Yr. 4 to 6)} = \frac{2070000 \times 2000}{20700} = 200000 \text{ p.a.}$ $\text{Dep. (Yr 7 to 10)} = \frac{2070000 \times 1800}{20700} = 180000 \text{ p.a.}$

## Method 5: PRODUCTION UNITS METHOD

<b>Meaning</b>	In this method, Depreciation is computed based on the production / output quantity.
<b>Formula</b>	$\text{Dep.} = \text{Depreciable Amt} \times \frac{\text{Production Quantity for the current year}}{\text{Total Estimated Production Quantity from the Machine}}$
<b>Example</b>	X Ltd purchased a machine costing Rs 25,00,000, having a Scrap Value of Rs 5,00,000. The machine is expected to produce 10,00,000 units of output in the following manner – <ul style="list-style-type: none"><li>• Years 1 &amp; 2: 1,15,000 units each,</li><li>• Years 3 to 7: 1,00,000 units each, and</li><li>• Years 8 to 10: 90,000 units each.</li></ul> In this case, Depreciation Amounts will be computed as under – $\text{Dep. (Yr 1 \& 2)} = \frac{2000000 \times 115000}{1000000} = 230000 \text{ p.a.}$ $\text{Dep. (Yr 3 to 7)} = \frac{2000000 \times 100000}{1000000} = 200000 \text{ p.a.}$ $\text{Dep. (Yr 8 to 10)} = \frac{2000000 \times 90000}{1000000} = 180000 \text{ p.a.}$

## Method 6: DEPLETION METHOD

<b>Meaning</b>	<ul style="list-style-type: none"> <li>➤ Depletion means reduction or exhaustion.</li> <li>➤ This method is used in the case of Mines, Quarries, Oil Well, etc. containing only a certain estimated quantity of resources / products.</li> </ul>
<b>Formula</b>	$\text{Dep.} = \text{Depreciable Amt} \times \frac{\text{Quantity of Mineral / Oil extracted during current year}}{\text{Total Estimated Quantity from the Mine / Quarry / Well}}$
<b>Example</b>	<p>X Ltd took a quarry on lease by paying Rs. 75,00,000. As per technical estimate, the total quantity mineral deposit is 1,00,000 tonnes. The extraction pattern is given below –</p> <ul style="list-style-type: none"> <li>• Year 1: 6,000 tones,</li> <li>• Years 2 to 5: 15,000 tones each, and</li> <li>• Years 6 &amp; 7: 17,000 tones each.</li> </ul> <p>In this case, Depreciation Amounts will be computed as under –</p> <p><b>Dep. (Yr.1) =</b> <math>75L \times \frac{6000}{1L} = 450000</math></p> <p><b>Dep. (Yr 2 to 5) =</b> <math>75L \times \frac{15000}{1L} = 1125000 \text{ p.a.}</math></p> <p><b>Dep. (Yr 6 &amp; 7) =</b> <math>75L \times \frac{17000}{1L} = 1275000 \text{ p.a.}</math></p>

## ACCOUNTING ENTRIES FOR DEPRECIATION

Depreciation can be recorded in the books of account, under 2 approaches, which are described below -

Method	Method 1 Asset Credit Method	Method 2 Provision for Depreciation Method
<b>Journal Entry</b>	Depreciation A/c Dr. To Fixed Asset A/c Profit and Loss A/c Dr. To Depreciation A/c	Depreciation A/c Dr. To Provision for Depreciation A/c Profit and Loss A/c Dr. To Depreciation A/c
<b>Provision for Depreciation A/c</b>	There is no Provision for Depreciation Account at all.	Depreciation for each year is credited to Provision for Depreciation A/c, which shows the Accumulated Depreciation on the Asset.
<b>Effect on Asset A/c</b>	Asset A/c is shown at Historical Cost less Depreciation. So, balance in Asset A/c is reduced year after year.	Asset is shown in the books at Original Cost. Net Book Value = Original Cost less Accumulated Depreciation thereon.

**Note:** The above schemes are applicable to SLM and WDV Methods. The same treatment is applicable under - (a) Sum of Digits, (b) Machine Hours, (c) Production Units, and (d) Depletion Methods.

**Example:** Cost = 1000000 Life = 10 years Scrap Value = 100000 SLM

$$\text{Dep.} = \frac{10L - 1L}{10}$$

$$\Rightarrow 90000 \text{ p.a.}$$

**Method 1:**

**Method 2:**

Balance sheet

	Liabilities	Assets	Yr 1	Yr 2
		Machinery	910000	820000
		Machinery - Prov. for Dep.	1000000 (90000)	1000000 (180000)

## CHANGE IN COST AND RESIDUAL VALUE/LIFE OF ASSET

### CHANGE IN HISTORICAL COST

The Historical Cost of a depreciable asset may undergo subsequent changes arising as a result of increase or decrease in long term liability on account of —

- (a) Exchange Rate Fluctuations,
- (b) Price Adjustments,
- (c) Changes in duties, or
- (d) Other similar factors.

When the Historical Cost of an asset has undergone a change due to the above circumstances *the depreciation on the revised unamortised depreciable amount is provided prospectively over the residual useful life of the Asset.*

### CHANGE IN ESTIMATED USEFUL LIFE & SCRAP VALUE

The useful lives & scrap values of major depreciable assets or classes of depreciable assets may be reviewed periodically. The change should be accounted for as a change in an accounting estimate. Where there is a revision of the estimated useful life or scrap value of an asset, *the unamortised depreciable amount should be charged over the revised estimate.*

#### Example

B Ltd. owns an asset with an original cost of Rs. 2,00,000. On acquisition, management determined that the useful life was 10 years and the residual value would be Rs. 20,000. The asset is now 8 years old, and during this time there have been no revisions to the assessed residual value. At the end of year 8, management has reviewed the useful life and residual value and has determined that the useful life can be extended to 12 years in view of the maintenance program adopted by the company. As a result, the residual value will reduce to Rs. 10,000. How would the above changes in estimates be made by B Ltd.?

#### Solution

The changes in estimates would be effected in the following manner:

The asset has a carrying amount of Rs. 56,000 at the end of year 8 [Rs. 2,00,000 – Rs. 1,44,000] i.e. Accumulated Depreciation.

**Accumulated depreciation is calculated as**

Depreciable amount {Cost less residual value} = Rs. 2,00,000 – Rs. 20,000 = Rs. 1,80,000.

Annual depreciation = Depreciable amount / Useful life = 1,80,000 / 10 = Rs. 18,000.

Accumulated depreciation = 18,000 × No. of years (8) = Rs. 1,44,000.

Revision of the useful life to 12 years results in a remaining useful life of 4 years (12 – 8).

The revised depreciable amount is Rs. 46,000. (56,000 – 10,000)

Thus, depreciation should be charged in future at Rs. 11,500 per annum (Rs. 46,000/4 years).

### CHANGE IN METHOD OF DEPRECIATION

The depreciation method applied to an asset should be reviewed at least at each financial year-end and, if there has been a significant change in the expected pattern of consumption of the future economic benefits embodied in the asset, the method should be changed to reflect the changed pattern.

Whenever any change in depreciation method is made such change in method is treated as *change in accounting estimate* as per Accounting Standards.

Change in method of depreciation is applied with *prospective effect*. Hence, depreciation is recalculated in accordance with the new method from the date method is changed.

## REVALUATION OF DEPRECIABLE ASSETS

<b>First Revaluation</b>	<b>Upward</b>	Use Revaluation Surplus (R/S)		
	<b>Downward</b>	Use P & L A/c		
<b>Subsequent Revaluation</b>				

Case	1st	2nd	1st	2 <sup>nd</sup>
1	↑	↑	R/S	R/S
2	↓	↓	P & L	P & L
3	↑	↓	R/S	Use R/S 1st
4	↓	↑	P & L	Use P&L 1st

### Example

A Plant & Machinery costing Rs. 10,00,000 is depreciated on straight line assuming 10 year working life and zero residual value, for four years. At the end of fourth year, the machinery was revalued upwards by Rs. 40,000. The remaining useful life was reassessed at 8 years. Calculate depreciation for the fifth year.

### Solution

Depreciable amount {Cost less residual value} = Rs. 10,00,000 – Nil = Rs. 10,00,000.

Annual depreciation = Depreciable amount / Useful life = 10,00,000 / 10 = Rs. 1,00,000.

Accumulated depreciation = 1,00,000 × No. of years (4) = Rs. 4,00,000.

Carrying amount at the end of year 4 = Rs. 6,00,000 [Rs. 10,00,000 – Rs. 4,00,000]

Revised carrying amount after revaluation = 6,00,000 + 40,000 = 6,40,000

Now remaining useful life 8 years . The revised depreciable amount is Rs. 6,40,000.

Thus, depreciation for 5<sup>th</sup> year = Rs. 80,000 (Rs. 6,40,000/8 years).

## RELATED MATTERS

### CESSEATION OF DEPRECIATION

Depreciation ceases to be charged

A) When asset's residual value exceeds its carrying amount

The residual value of an asset may increase to an amount equal to or greater than its carrying amount. If it does, depreciation charge of the asset is zero unless and until its residual value subsequently decreases to an amount below its carrying amount.

B) At the *earlier of*:

- The date that the asset is retired from active use and is held for disposal, or
- The date that the asset is derecognised

### RETIREMENT

Asset is retired from active use & held for disposal

- ❖ It is to be recorded in the books at Carrying Amount or NRV, whichever is lower.
- ❖ Any expected loss is recognized immediately in the P&L statement.

## SALE / DISPOSAL OF DEPRECIABLE ASSETS

Sale/Disposal of Depreciable Assets in dealt with in the following manner —

1. Ascertain Depreciation for the year (upto the date of disposal), and charge the same for that year.
2. Determine Net Book Value" (or) Written Down Value of the Asset = Historical Cost less Depreciation till date, including depreciation upto the date of disposal.
3. Compare Net Book Value of Asset with its Disposal Value and ascertain Profit / (Loss) on disposal & thereafter transfer the Profit / (Loss) on disposal to the Profit and Loss Account.

### Question

The M/s LG Transport purchased 10 trucks at Rs. 45,00,000 each on 1st April 2018. On October 1st, 2020, one of the trucks is involved in an accident and is completely destroyed and Rs. 27,00,000 is received from the insurance in full settlement. On the same date, another truck is purchased by the company for the sum of Rs. 50,00,000. The company writes off 20% on the original cost per annum. The company observe the calendar year as its financial year.

You are required to prepare the motor truck account for two year ending 31 Dec, 2021

### Solution

#### Machine A/c

Date	Particulars	Amount	Date	Particulars	Amount
2020			2020		
1/1	To Balance b/d	2,92,50,000	1/10	By Bank A/c	27,00,000
1/10	To P&L A/c (Profit on Settlement of Truck)	4,50,000	1/10	By Depreciation on lost assets	6,75,000
1/10	To Bank A/c	50,00,000	31/12	By Depreciation A/c	83,50,000
			31/12	By Balance c/d	2,29,75,000
		<b>3,47,00,000</b>			<b>3,47,00,000</b>
2021			2021		
1/1	To Balance b/d	2,29,75,000	31/12	By Depreciation A/c	91,00,000
			31/12	By Balance c/d	1,38,75,000
		<b>2,29,75,000</b>			<b>2,29,75,000</b>

### Working Note:

Opening balance on 01.01.2020

Original cost as on 1.4.2018	4,50,00,000
Less: Depreciation for 2018	(67,50,000)
	3,82,50,000
Less: Depreciation for 2019	(90,00,000)
	2,92,50,000

To find out Profit/Loss on settlement of truck

Original cost as on 1.4.2018	45,00,000
Less: Depreciation for 2018	(6,75,000)
	38,25,000
Less: Depreciation for 2019	(9,00,000)
	29,25,000
Less: Depreciation for 2020 (9 Months)	(6,75,000)
	22,50,000
Less: Amount received from Insurance company	(27,00,000)
<b>Profit</b>	<b>4,50,000</b>



## Question

A Firm purchased an old Machinery for Rs. 37,000 on 1st January, 2018 and spent Rs. 3,000 on its overhauling. On 1st July 2019, another machine was purchased for Rs. 10,000. On 1st July 2020, the machinery which was purchased on 1st January 2018, was sold for Rs. 28,000 and the same day a new machinery costing Rs. 25,000 was purchased. On 1st July, 2021, the machine which was purchased on 1st July, 2019 was sold for Rs. 2,000.

Depreciation is charged @ 10% per annum on straight line method. The firm changed the method and adopted diminishing balance method with effect from 1st January, 2019 and the rate was increased to 15% per annum. The books are closed on 31st December every year.

Prepare Machinery account for four years from 1st January, 2018.

## Solution

### Machine A/c

Date	Particulars	Amount	Date	Particulars	Amount
2018			2018		
1/1	To Bank A/c (37,000+3,000)	40,000	31/12	By Depreciation A/c	4,000
			31/12	By Balance c/d	36,000
		<b>40,000</b>			<b>40,000</b>
2019			2019		
1/1	To Balance b/d	36,000	31/12	By Depreciation A/c (5,400+750)	6,150
1/7	To Bank A/c	10,000	31/12	By Balance c/d (30,600+9,250)	39,850
		<b>46,000</b>			<b>46,000</b>
2020			2020		
1/1	To Balance b/d	39,850	1/7	By Bank A/c	28,000
1/7	To Bank A/c	25,000	1/7	By Depreciation A/c	2,295
			1/7	By Profit & Loss A/c (Loss on sale)	305
			31/12	By Depreciation A/c (1,388+1,875)	3,263
			31/12	By Balance c/d (7,862+23,125)	30,987
		<b>64,850</b>			<b>64,850</b>
2021			2021		
1/1	To Balance b/d	30,987	1/7	By Bank A/c	2,000
			1/7	By Depreciation A/c	590
			1/7	By Profit & Loss A/c (Loss on sale)	5,272
			31/12	By Depreciation A/c	3,469
			31/12	By Balance c/d	19,656
		<b>30,987</b>			<b>30,987</b>

## Working Note:

Book Value of machines (Straight line method)

	Machine 1	Machine 2	Machine 3
Cost of Machinery	40,000	10,000	25,000
Less: Depreciation for 2018	(4,000)		
Written down value as on 31.12.2018	36,000		
Less: Depreciation for 2019	(5,400)	(750) [6 months]	

Written down value as on 31.12.2019	30,600	9,250	
Less: Depreciation for 2020 [6 months]	(2,295)	(1,388)	(1,875) [6 months]
Written down value as on 1.7.2020	<b>28,305</b>		
Less: Sale Proceeds	(28,000)		
Loss on Sale	<b>305</b>		
Written down value as on 31.12.2020		<b>7,862</b>	<b>23,125</b>
Depreciation for 6 months in 2021		(590)	
Written down value as on 1.7.2021		<b>7,272</b>	
Sale proceeds		(2,000)	
Loss on sale		<b>5,272</b>	
Depreciation for 2021			(3,469)
Written down value as on 31.12.2021			<b>19,656</b>