



Accounting and Finance

Unit-03 Depreciation

Author: Dr. Vinoth

Semester-01

Master of Business Administration

UNIT 03

Depreciation



Names of Sub-Units

Introduction to Financial Accounting, Concept of Depreciation, Need for Calculating Depreciation, Methods of Calculating Depreciation, Accounting Treatment of Depreciation.



Overview

This unit begins by explaining the meaning of depreciation and discusses the concept of depreciation. The unit explains the accounting treatment of depreciation. It also discusses the methods of calculating depreciation.



Learning Objectives

In this unit, you will learn to:

- ✂ Describe the meaning of depreciation
- ✂ State the methods of depreciation
- ✂ Classify the accounting treatment of depreciation



Learning Outcomes

At the end of this unit, you would:

- ✂ Assess the meaning of depreciation
- ✂ Examine the methods of depreciation
- ✂ Analyse the uses of depreciation



Pre-Unit Preparatory Material

✂ http://accioneduca.org/admin/archivos/clases/material/depreciation_1564412042.pdf

3.1 INTRODUCTION

Depreciation accounting is mainly based on the concept of income. The matching of revenues and expenses is the idea of income. Frequently, the goods purchased are matched either immediately or within a year. The essence of the income notion is that expenses must be matched against earnings. The ultimate goal of matching is to figure out how much profit or loss the transaction will generate. If the assets are all long-term assets acquired by the company, they should be matched to the revenues generated by the company. The fundamental objective of the firm is to match the expenditure of the assets incurred by the firm at the time of purchase against the revenues. To have an effective matching against the revenues on every year, the amount of purchase has to be stretched. The stretching of expenses into many years is known as depreciation.

Depreciation, according to Dickens, is the permanent and ongoing reduction in the asset's quality, quantity, and value. Depreciation is the term used to describe the gradual loss in the value of fixed assets. It is a match between the fixed charge expense and the revenue for the current year. The unrecovered component of the remaining/left should be carried forward to future years to match against the relevant revenues. The ultimate goal of depreciation is to replace fixed assets only when they are no longer useful using current revenues.

3.2 CONCEPT OF DEPRECIATION

Depreciation is an accounting concept that allows a corporation to write off the value of an asset over time, typically the asset's useful life. Machinery and equipment, for example, are costly assets. Rather than recognizing the entire cost of an asset in the first year, depreciation allows businesses to spread out that cost and create revenue.

Depreciation is a method of accounting for changes in the carrying value of a property over time. The gap between the original cost and the cumulative depreciation over the years is known as carrying value.

Each corporation may decide when to start depreciating a fixed asset, also known as property, plant, and equipment. A small business, for example, might set a \$500 threshold for depreciating an asset. A larger corporation, on the other hand, may set a \$10,000 threshold below which all purchases are expensed immediately.

3.2.1 Need for Calculating Depreciation

Depreciation needs to be provided because an asset is bound to undergo wear and tear over a period of time. This reduces the asset's working capacity and efficacy. As a result, this should represent the asset's value as recorded in the books of accounts. Furthermore, when new technologies and innovation take hold, every asset becomes obsolete over time. As a result, the asset's value will depreciate over time, and this must be factored in. In addition, depreciation is appropriate for complying with the accounting principle of matching. According to the matching principle, a period's spending must be recognised at the same time as the period's revenue. So, an asset which generates income must be depreciated as per given provisions.

3.2.2 Factors Affecting Depreciation

The amount of depreciation is impacted by a number of factors. Let us take a look at some of them. There are four main factors to consider when calculating the depreciation expense are as follows:

- The cost of the asset.
- The estimated salvage value of the asset. Salvage value (also called residual value) is the amount of money that the company expects to recover, less the disposal costs, on the date the asset is scrapped, sold, or traded in.
- Estimated useful life of the asset. Useful life refers to the window of time that a company plans to use an asset. Useful life can be expressed in years, months, working hours, or units produced.
- Obsolescence should be considered when determining an asset's useful life and will affect the calculation of depreciation. For example, a machine capable of producing units for 20 years may be obsolete in six years; therefore, the asset's useful life is six years in this case.

For its business activities, a corporation is free to select the most appropriate depreciation method. According to accounting theory, organisations should select a depreciation method that accurately matches their economic situation. As a result, businesses can select a strategy for allocating asset costs to accounting periods based on the benefits derived from the asset's use.

For financial reporting, most corporations utilise the straight-line technique, but they may use different methods for different assets. Use a depreciation method that assigns asset cost to accounting periods in a systematic and sensible manner is the most crucial criteria to follow.

3.3 METHODS OF CALCULATING DEPRECIATION

There are various methods of allocating depreciation over the useful life of assets. The method of providing depreciation is selected on the basis of various factors such as types of assets, nature of business, circumstances prevailing in business, etc. These methods are given below:

Straight Line Method

This method is also known as fixed installment method. In this method, depreciation is ascertained on the original cost by a fixed percentage, keeping in mind the scrap value of the assets. Under this method, the amount of depreciation remains uniform/fixed and the value of the asset becomes zero at the end of its life. It may also be calculated by the following formula:

$$\text{Depreciation} = \text{Original Cost} - (\text{Scrape Value} / \text{Life of Assets in Year})$$

Diminishing Balance Method

The written-down-value method is another name for this method. Depreciation is computed on a decreasing value in this method, but the rate of depreciation remains constant. Every year, the amount of depreciation on assets lowers, but the asset's value does not decline to zero. The cost of assets, scrap value, and useful life of the assets can all be used to calculate the rate of depreciation. The formula to compute the rate of depreciation is given below:

$$\text{Rate} = \left(1 - \sqrt[n]{\frac{S}{C}} \times 100 \right)$$

Where, N stands for number of years of useful life of the asset, S for scrap value, C for cost of asset, and R for rate of depreciation.

Annuity Method

Depreciation on assets is computed using this approach, which takes into consideration the asset's cost as well as interest. The annuity method is a compounded interest method that calculates depreciation based on the premise that depreciation plus the normal cost of capital to finance the assets will remain constant over the asset's life. When calculating the amount of depreciation, this approach takes into account interest as well as the cost of the assets. Every year, the amount of interest is debited from the assets account, and the amount of depreciation is credited. The opening balance of the asset is used to calculate interest. So, it (interest) decreases every year but the amount of depreciation remains constant which is taken from the annuity tables for depreciation. This amount of depreciation is that much by which the value of asset becomes zero.

Depreciation Fund Method or Sinking Fund Method

This method is set up in such a way that the collected funds are immediately available to replace assets when their useful lives expire. The amount of depreciation on assets is put into a sinking fund using this procedure. Each year, an equivalent amount of depreciation is invested in government or marketable securities, and the interest earned on these securities is likewise reinvested. When the asset's economic life expires, the securities are sold in the market, and the proceeds are used to replace the old assets. If any profit or loss is realised from the sale of these securities, it is credited to the profit and loss account.

Insurance Policy Method

The concept is related to that of a sinking fund. The firm takes out an insurance policy to replace the assets in this approach. The amount of premium is determined by the annual amount of depreciation, whereas the sinking fund technique requires the firm to purchase some securities. The sum of the premium, plus interest, is held by the insurance company. The insurance coverage matures when the assets' useful life expires. The sum is made available by the insurance company upon maturity and is used to purchase new assets. As a result, the funds are safer and more liquid with this strategy.

Revaluation or Appraisal Method

As its name indicates, depreciation is calculated on the basis of revaluation of assets. After some time or an interval of a year, the assets are revalued by experts. The difference of the valuation of the two periods is called depreciation or appreciation of that period. Generally, this method is used in the case of livestock, copyrights and patents.

Depletion Method

It is also known as production method. This method is useful for natural assets such as coal mines, oil wells, etc. These are taken for excavation for a definite period on the contract basis. In this case, the depreciation is computed on the basis of production. First, the total production of the contract period is estimated, then total depreciable cost is divided by the total production and multiplied by annual output to determine the annual amount of depreciation. In the form of formula:

$$\text{Annual Depreciation} = \frac{\text{Annual Output}}{\text{Total Estimated Output}}$$

Machine Hour Rate Method

When depreciation is calculated on the basis of working hours of the machine or plant, this method is used. The original cost of plant or machinery is divided by the total number of working hours of the machine or plant to find the machine hour rate. To compute the depreciation of a year the machine hour rate is multiplied by the total working hours of the machine/plant in a year. This procedure may be explained with the following formula:

$$\text{Machine Hour Rate} = \frac{\text{Original Cost of Machine}}{\text{Total Working Hours of the Machine During its Life}}$$

$$\text{Annual Depreciation} = \text{Machine Hour Rate} \times \text{Working Hours in a Year}$$

3.4 ACCOUNTING TREATMENT OF DEPRECIATION

According to the concept of depreciation, the value of the asset is dispersed throughout the life of the period in order to match the respective earnings of the year after year. The purchase value of the asset is an expenditure to be stretched to many numbers of years in order to equate with the revenues. To equate the revenues, the scrap value of the asset at the end of the life period is realized should be deducted and apportioned to the total number of the economic life period of the asset. The aim of deducting the scrap value of the asset is reducing the original value of the investment.

Example: Cost of Machine - ₹ 1,00,000

Estimated life of the machine - 5 years

Scrap value - Nil

Depreciation = (Cost of the machine – Scrap value) / Economic Life period of the asset in years

Depreciation = (1,00,000 – 0) / 5

= ₹ 20,000

To understand the above calculation, the following table is important:

Value of the asset (Begin in ₹) Col. 1	Depreciation (in ₹) Col. 2	Value of the asset (End) (in ₹) Col 3 = Col.1 – Col.2
1 st year – 1,00,000	20,000	80,000
2 nd year – 80,000	20,000	60,000
3 rd year – 60,000	20,000	40,000
4 th year – 40,000	20,000	20,000
5 th year – 20,000	20,000	“0”

From the above table, ₹ 20,000 is charged on every year to recover ₹ 1,00,000 during its life period i.e., 5 years.

Example 2: Original value of the investment – ₹ 1,00,000 Scrap value – ₹ 10,000

Life of the asset – 5 years

Depreciation = (1,00,000 – 10,000)/5

= ₹ 18,000

To understand the methodology of straight-line depreciation, the following table will illustrate the process.

Value of the asset (Begin) (in `)	Depreciation (in `)	Value of the asset (End) (in `)
1st year – 1,00,000	18,0000	82,000
2nd year – 82,000	18,0000	64,000
3rd year – 64,000	18,0000	46,000
4th year – 46,000	18,0000	28000
5th year – 28,000	18,0000	10,000(Scrap value) *

The scrap value of the asset is expected to realize only at the end of the life period of the asset i.e., 5 years.



3.5 CONCLUSION

- Depreciation accounting is mainly based on the concept of income. The concept of income is matching of revenues with expenses.
- The goods purchased are frequently matched through immediate sale or within a year.
- According to Dickens, depreciation is the permanent and continuous diminution in the quality/ quantity/value of the asset.
- Depreciation is an accounting convention that allows a company to write off an asset's value over a period of time, commonly the asset's useful life.
- Depreciation is used to account for decline in the carrying value over time.
- Depreciation needs to be provided because an asset is bound to undergo wear and tear over a period of time.
- Moreover, in order to comply with the matching principle of accounts, it is ideal to provide depreciation.
- A company is free to make use of the most appropriate depreciation method for its business operations.
- There are various methods of allocating depreciation over the useful life of the assets.
- According to the concept of depreciation, the value of the asset is dispersed throughout the life of the period in order to match the respective earnings of the year after year.



3.6 GLOSSARY

- **Book Value of the Asset:** The value of the asset after deducting the depreciation from the value of the asset at the beginning
- **Depreciation:** Continuous reduction/decrease/diminution in the value of the asset
- **Depreciation Accounting:** Recording the entries of depreciation through journal, ledger accounts of depreciation, fixed asset and profit and loss account

- **Original Value of the Asset:** The value of the asset at the time of purchase or acquisition
- **Scrap Value of the Asset:** The value at the end of the life period of the asset; when the asset cannot be put for further usage



3.7 CASE STUDY: FINDING DEPRECIATION

Case Objective

Tata Steel Ltd. wants to establish its EOU in the state of Orissa through exploration of iron ore.

Tata Steel Ltd wants to establish its EOU in the state of Orissa through exploration of iron ore. It identified that the state of Orissa is one of the ideal states having greater potential of iron ore than any other state in India. The firm has reached lease contract with the Government of Orissa for the amount of `200 crore towards the extraction of 40,00,000 tonnes iron ore from fields for 10 years. The firm would like to establish a processing plant which amounts to `50 crore to produce the quality carbon steel for the foreign industrial buyers. The life period of the machine is denominated in terms of 2,50,000 working hours. The firm is required to extract the iron ore.

Year	1	2	3	4	5	6	7	8	9	10
Expected Extraction Per Year in Lakh	8	7	6	5	4	3	3	2	1	1
Hrs. Working	1,00,000	75,000	25,000	12,500	6,250	6,250	6,250	6,250	6,250	6,250

1. Tata Steel Ltd wants to establish its EOU in the state of Orissa.
(Hint: Tata Steel Ltd identified that the state of Orissa is one of the ideal states having greater potential of iron ore than any other state in India.)
2. To go for further replacement after 10 years, how much should the firm charge depreciation in the case of iron ore field? Which method should be applied?
(Hint: written down value method)
3. To replace the machinery recently bought after 10 years, how much should be charged as depreciation in accordance with the working hours given?
(Hint: 6,250)



3.8 SELF-ASSESSMENT QUESTIONS

A. Multiple Choice Questions

1. The main objective of depreciation is
 - a. To show the previous profit
 - b. To calculate net profit
 - c. To reduce tax
 - d. To satisfy the tax department

2. Depreciation is generated due to
 - a. Increase in the value of liability
 - b. Decrease in capital
 - c. Wear and tear
 - d. Decrease in the value of assets
3. What is the purpose of making a provision for depreciation in the accounts?
 - a. To charge the cost of fixed assets against profits
 - b. To show the current market value of fixed asset
 - c. To make cash available to replace fixed assets
 - d. To make a provision for repairs
4. According to straight line method of providing depreciation, the depreciation
 - a. Remains constant
 - b. Increase each year
 - c. Decrease each year
 - d. None of these
5. Total amount of depreciation of an asset cannot exceed its
 - a. Depreciable value
 - b. Scrap value
 - c. Market value
 - d. None of these
6. According to fixed instalment method, depreciation is calculated on
 - a. Balance amount
 - b. Original cost
 - c. Scrap value
 - d. None of these
7. Salvage value means
 - a. Definite sale price of the asset
 - b. Cash to be received when life of the asset ends
 - c. Cash to be paid when asset is disposed off
 - d. Estimated disposal value
8. Depreciation is calculated under diminishing balance method, based on
 - a. Original value
 - b. Book value
 - c. Scrap value
 - d. None of these

9. Depreciation amount charged on a machinery will be debited to:
 - a. Repair account
 - b. Cash account
 - c. Depreciation account
 - d. Machinery account
10. In accounting, becoming out of date or obsolete is known as
 - a. Amortization
 - b. Obsolescence
 - c. Depletion
 - d. Physical deterioration
11. Which of the following methods of depreciation is not recognized by Income Tax Law?
 - a. Straight line Method
 - b. None of these
 - c. Both straight line and diminishing balance methods
 - d. Diminishing balance method
12. Asset Disposal A/c is prepared when:
 - a. Provision for depreciation a/c is prepared
 - b. Asset a/c is prepared
 - c. Profit and loss a/c is prepared
 - d. Depreciation a/c is prepared
13. Which of the following is the example of capital reserve?
 - a. Workmen's compensation fund
 - b. None of these
 - c. Premium received on issue of shares or debentures
 - d. General reserve
14. Which of the following is the example of revenue reserve?
 - a. Profit on redemption of debentures
 - b. Profit on revaluation of fixed
 - c. Investment fluctuation fund
 - d. Profit on re-issue of forfeited shares
15. Dividend equalisation reserve is:
 - a. Specific reserve
 - b. None of these
 - c. Secret reserve
 - d. General reserve

16. General reserves are shown in:
 - a. Revaluation account
 - b. Profit and loss account
 - c. None of these
 - d. Balance sheet
17. According to Companies Act, 1956, secret reserves can be created by:
 - a. Only private company
 - b. Banking and insurance companies
 - c. Only public company
 - d. Companies registered under the Companies Act
18. The loss on sale of an asset is debited to:
 - a. Profit and loss account
 - b. Trial balance cr. side
 - c. Balance sheet
 - d. Trading account
19. Depreciation is charged on:
 - a. Current assets
 - b. Fixed tangible assets
 - c. None of these
 - d. Both current and fixed assets
20. At the end of the year, depreciation account is transferred to:
 - a. Balance sheet
 - b. Trading account
 - c. Profit and loss appropriation account
 - d. Profit and loss account

B. Essay Type Questions

1. What is depreciation?
2. What is the need for calculating depreciation?
3. How can we calculate depreciation under annuity method?
4. Distinguish between Straight line Depreciation method and Dimishing Balance Method.



3.9 ANSWERS AND HINTS FOR SELF-ASSESSMENT QUESTIONS

A. Answers to Multiple Choice Questions

Q. No.	Answer
1.	b. To calculate net profit
2.	c. Wear and tear
3.	a. To charge the cost of fixed assets against profits
4.	a. Remains constant
5.	a. Depreciable value
6.	b. Original cost
7.	d. Estimated disposal value
8.	b. Book value
9.	c. Depreciation account
10.	b. Obsolescence
11.	a. Straight line method
12.	a. Provision for depreciation a/c is prepared
13.	c. Premium received on issue of shares or debentures
14.	c. Investment fluctuation fund
15.	a. Specific reserve
16.	d. Balance sheet
17.	b. Banking and insurance companies
18.	a. Profit and loss Account
19.	b. Fixed tangible assets
20.	d. Profit and loss account

B. Hints for Essay Type Questions

1. Depreciation is an accounting convention that allows a company to write off an asset's value over a period of time, commonly the asset's useful life. Refer to Section Concept of Depreciation
2. Depreciation needs to be provided because an asset is bound to undergo wear and tear over a period of time. This reduces the working capacity and effectiveness of the asset. Hence, this should reflect the value of the asset, at which it is carried in the books of accounts. Refer to Section Methods of Calculating Depreciation
3. Under this method, depreciation on assets is calculated, keeping in account the cost of assets along with interest thereon. Refer to Section Accounting Treatment of Depreciation

4. Straight-line depreciation spreads the cost evenly over the asset's useful life, while diminishing balance method front-loads depreciation, allocating more in the early years. Consider the linear versus accelerated nature of these approaches.



3.10 POST-UNIT READING MATERIAL

- <https://bench.co/blog/tax-tips/depreciation/>
- <https://economictimes.indiatimes.com/definition/depreciation>
- <https://corporatefinanceinstitute.com/resources/knowledge/accounting/types-depreciation-methods/>
- <https://cleartax.in/g/terms/depreciation>



3.11 TOPICS FOR DISCUSSION FORUMS

- Discuss with your friends if depreciation is useful or harmful for a firm.

