Section 1—Plant Assets

I. Cost Determination

Plant assets are tangible assets used in a company's operations that have a useful life of more than one accounting period. Consistent with cost principle, plant assets are recorded at cost when acquired. Cost includes all normal and reasonable expenditures necessary to get the asset in place and ready for its intended use.

A. Land—has an unlimited life and is not usually used up over time. Cost includes:
   1. The total amount paid for the land.
   2. Real estate commissions, title insurance fees, legal fees, and any accrued property taxes paid by the purchaser.
   3. Payments for surveying, clearing, grading, and draining, and government assessments for public roadways, sewers, and sidewalks are included in the cost of land.
   4. Removal of any existing structures (less proceeds from sale of salvaged material). These costs are charged to the land account. Land is not depreciated.

B. Land Improvements—costs that increase the usefulness of the land. Land improvements have limited useful lives and are used up.
   1. Examples include parking lot surfaces, driveways, fences, and lighting systems.
   2. Costs are charged to a separate Land Improvement account so that their costs can be allocated to the periods they benefit.

C. Buildings
   1. When purchased, costs usually includes its purchase price, brokerage fees, taxes, title fees, attorney costs, and all expenditures to make it ready for its intended use including any necessary repairs or renovations such as wiring, lighting, flooring and wall coverings.
   2. If constructed for own use, cost includes materials and labor plus a reasonable amount of indirect overhead costs, such as heat, lighting, power, and depreciation on machinery used to construct the asset. Cost also includes design fees, building permits, and insurance during construction (but not after it is placed in use; insurance then becomes an operating expense).

D. Machinery and Equipment
   Costs include all normal and necessary expenditures to purchase and prepare them for intended use, including purchase price, taxes, transportation charges, insurance while in transit, and the installing, assembling and testing of the machinery and equipment.
### Chapter Outline

**E. Lump-Sum Purchase**

1. A lump-sum purchase is the purchase of plant assets as a group in a single transaction for a lump-sum price.
2. Individual asset cost is determined by allocating the cost of the purchase among the different types of assets acquired based on their *relative market values*.

**II. Depreciation** — The process of allocating the cost of a plant asset to expense in the accounting periods benefiting from its use.

#### A. Factors in Computing Depreciation

1. **Cost**—consists of all necessary and reasonable expenditures to acquire the plant asset and to prepare it for its intended use.
2. **Salvage value**—an estimate of the asset's value at the end of its benefit period (also called *residual value* or *scrap value*).
3. **Useful life**—length of time the asset is expected to be productively used in a company's operations (also called *service life*). Factors affecting useful life include:
   a. Wear and tear from use in operations.
   b. **Inadequacy**—the insufficient capacity of plant assets to meet the company's growing productive demands.
   c. **Obsolescence**—refers to a plant asset that is no longer useful in producing goods or services with a competitive advantage because of new inventions and improvements.

#### B. Depreciation Methods

*Depreciation methods* are used to allocate a plant asset’s cost over the accounting periods in its useful life.

1. **Straight-line method**—charges the same amount to expense for each period of the asset’s useful life; most frequently used method. *Computation:*
   a. Cost minus salvage value (equals the *depreciable cost*) divided by the useful life equals annual depreciation expense.
   b. Can be expressed as a rate by dividing 100% by the number of periods in the assets’ useful life.

2. **Units-of-production method**—charges a varying amount to expense for each period of an asset’s useful life depending on its usage. *Computation:*
   a. Cost minus salvage value divided by the total number of units expected to be produced during its useful life equals the depreciation per unit.
   b. Depreciation cost per unit times number of units produced in the period equals the period’s depreciation expense.
Chapter 08 - Long-Term Assets

Chapter Outline

3. Declining-balance method—an accelerated depreciation method that yields larger depreciation expense during the early years of an asset's life and less depreciation in the later years. Computation:
   a. Multiply the asset’s beginning-of-period book value by a multiple of the straight-line rate. (Do not consider salvage value.) Book value is computed as the asset’s cost less its accumulated depreciation.
   b. A common depreciation rate for the declining-balance method is double the straight-line rate; called the double-declining-balance method.

4. Comparing depreciation methods—while the amount of depreciation expense per period differs for different methods, total depreciation expense is the same over a given asset’s useful life.

5. Depreciation for tax reporting—differences between financial and tax accounting systems are normal and expected.
   a. Many companies use accelerated depreciation in computing taxable income because it postpones tax payments by charging higher depreciation expense in the early years and lower amounts in the later years.
   b. Federal income tax law rules for depreciating assets are called the Modified Accelerated Cost Recovery System (MACRS).
   c. MACRS is not acceptable for financial reporting because it often allocates costs over an arbitrary period that is less than the asset's useful life and it fails to estimate salvage value.

C. Partial-Year Depreciation
   When an asset is purchased (or disposed of) at a time other than the beginning or end of an accounting period, depreciation is recorded for the part of the year the asset was in use.

D. Changes in Estimates for Depreciation
   Depreciation is based on estimates of salvage value and useful life; later, new information may indicate these estimates are inaccurate.
   1. Use the new estimate to compute depreciation for current and future periods by revising the depreciation expense computation by spreading the cost yet to be depreciated over the remaining useful life.
   2. The revision is referred to as a change in an accounting estimate and is reflected in future financial statements; not in prior statements.
# E. Reporting Depreciation

1. Both the cost and accumulated depreciation of plant assets are reported on the balance sheet or in its notes.
2. To satisfy the full-disclosure principle, the depreciation method(s) used must be disclosed in notes.
3. Plant assets are reported on the balance sheet at book value; not at fair market value; emphasis on cost rather than fair market value is based on the *going concern assumption* unless there is a permanent decline in the fair market value of an asset relative to its book value. Called an impairment, in this case, the company writes the asset down to fair market value.
4. Accumulated Depreciation is a contra asset account with a normal credit balance. It does *not* represent funds accumulated to buy new assets when the currently owned assets are replaced.

### III. Additional Expenditures

In recording additional expenditures for an assets’ operation, maintenance, repair, and improvement, the company must decide whether to capitalize (that is, debit an asset account) or expense them.

#### A. Types of Additional Expenditures

1. **Revenue expenditures** (also called *income statement expenditures*) are additional costs of plant assets that do not materially increase the asset’s life or productive capabilities; they are recorded as expenses and reported on the income statement.

2. **Capital expenditures** (also called *balance sheet expenditures*) are additional costs of plant assets that provide benefits extending beyond the current period; they are debited to asset accounts and reported on the balance sheet.

#### B. Ordinary Repairs

1. **Ordinary repairs** are expenditures to keep an asset in normal, good operating condition.

2. Ordinary repairs are treated as revenue expenditures; their costs are reported as expenses on the income statement.

#### C. Betterments and Extraordinary Repairs—accounting for betterments and extraordinary repairs is similar. Both are treated as capital expenditures.

1. **Betterments** (Improvements)—are expenditures that make a plant asset more efficient or productive.

2. **Extraordinary Repairs** (Replacements)—are expenditures extending the asset’s useful life beyond its original estimate. These are capital expenditures because they benefit future periods and their costs are debited to the asset account.
Chapter Outline

IV. Disposals of Plant Assets—Assets may be discarded, sold, or exchanged.

A. Discarding Plant Assets
   1. Entry to record disposal of plant assets when fully depreciated (when accumulated depreciation is less than the asset’s cost): debit Accumulated Depreciation, credit the plant asset account.
   2. Entry to record disposal of plant assets when not fully depreciated (when accumulated depreciation is less than the asset’s cost): first, record depreciation expense through date discarded, then debit Accumulated Depreciation, debit Loss on Disposal (for the remaining book value), credit the plant asset account.

B. Selling Plant Assets
   First, record depreciation expense through date sold, then:
   1. Entry to record sale at book value: debit cash, debit Accumulated Depreciation, credit the plant asset account.
   2. Entry to record sale above book value: debit cash, debit Accumulated Depreciation, credit Gain on Disposal, credit the plant asset account.
   3. Entry to record sale below book value: debit cash, debit Loss on Disposal, debit Accumulated Depreciation, credit the plant asset account.

V. Section 2—Natural Resources—assets that are physically consumed when used. Examples include timber, mineral deposits, and oil and gas fields. Since they are consumed when used, they are also called wasting assets.

A. Cost Determination and Depletion
   1. Natural resources are recorded at cost, which includes all expenditures necessary to acquire the resource and prepare it for its intended use.
   2. Depletion is the process of allocating the cost of a natural resource to the period when it is consumed.
   3. Natural resources are reported on the balance sheet at cost less accumulated depletion.
   4. The depletion expense per period is based on the units extracted; entry to record depletion: debit Depletion Expense, credit Accumulated Depletion.

B. Plant Assets Used in Extracting
   When the usefulness of plant assets used in extracting resources is directly related to the depletion of the natural resource, their costs are depreciated using the units-of-production method in proportion to the depletion of the natural resource.
Chapter Outline

VI. Section 3 -- Intangible Assets—nonphysical assets (used in operations) that confer on their owners long-term rights, privileges, or competitive advantages.

A. Cost Determination and Amortization

1. An intangible asset is recorded at cost when purchased. Intangibles are then separated into those with limited lives or indefinite lives. For those with a limited life, its cost is systematically allocated to expense over its estimated useful life through a process called amortization. If an intangible asset has an indefinite life, it should not be amortized.

2. Amortization is similar to depreciation and depletion, except that only the straight-line method is generally used for amortization.

3. The effects of amortization are recorded in a contra account called Accumulated Amortization. The gross acquisition cost and accumulated amortization are disclosed in the balance sheet.

B. Types of Intangibles

1. Patent—an exclusive right granted to its owner to manufacture and sell a patented machine or device, or to use a process, for 20 years.

2. Copyright—the exclusive right given to its owner to publish and sell a musical, literary, or artistic work during the life of the creator plus 70 years.

3. Leasehold—lessee is granted the right to use property by the lessor, the property’s owner.

4. Leasehold improvements—alterations or improvements to leased property, such as partitions, painting, and storefronts.

5. Franchises and Licenses—rights that a company or government grants an entity to deliver a product or service under specified conditions. If for an indefinite period, costs are not amortized.

6. Trademarks and Trade Names—symbols, names, phrases, or jingles identified with a company, product, or service. If the company plans to renew indefinitely its right to the trademark, the cost is not amortized.

7. Goodwill—meaning in accounting: the amount by which the value of a company exceeds the value of its individual assets and liabilities; implies the company as a whole has certain value attributes not measured among its individual assets and liabilities.

8. Other Intangibles—include assets such as software, noncompete covenants, customer lists, etc. Record the intangible asset’s costs, then determine whether the asset has a limited or indefinite life. If limited, allocate its costs over that
Chapter Outline

period. If indefinite, its costs are not amortized.

C. Global View
1. Accounting for Plant Assets – Cost, depreciation, additional expenditures and disposals of plant assets are treated similarly under both GAAP and IFRS. The one area where there are differences is in accounting for changes in the value of plant assets.
   a. Decreases in the Value of Plant Assets – When the value of plant assets declines after acquisition, but before disposition, both GAAP and IFRS require companies to record those decreases as impairment losses. GAAP revalues impaired plant assets to fair value whereas IFRS revalues them to a recoverable amount.
   b. Increases in the Value of Plant Assets – GAAP prohibits companies to record increases in the value of plant assets. IFRS permits upward asset revaluations. If an impairment was previously recorded, a company would reverse that impairment to the extent necessary and record that increase in income. If the increase is beyond the original cost, that increase is recorded in comprehensive income.

2. Accounting for Intangible Assets – GAAP and IFRS are broadly similar in terms of cost determination, depreciation, additional expenditures and disposals of intangible assets, however these two systems handle decreases and increases in the value of intangible assets differently. IFRS requirements for recording increases in the value of intangible assets are so restrictive that such increases are rare.

VII. Decision Analysis—Total Asset Turnover
A. Total asset turnover is a measure of a company’s ability to use its assets most efficiently and effectively.
B. Calculated by dividing net sales by average total assets.
C. It is safe to say that all companies desire a high total asset turnover. However, interpreting a company’s total asset turnover requires an understanding of the company’s operations.
   1. Some operations are capital intensive, meaning that a relatively large amount is invested in assets to generate sales, which would suggest a lower total asset turnover.
   2. Other operations are labor intensive, meaning that they generate sales more by the efforts of people than the use of assets; a higher total asset turnover would be expected.
VIII. **Exchanging Plant Assets (Appendix 8A)** Many plant assets are disposed of by exchanging them for newer assets. In a typical exchange, a *trade-in allowance* is received on the old asset and the balance is paid in cash. Accounting for the exchange depends on whether the transaction has *commercial substance*. An exchange has commercial substance if the company’s future cash flows change as a result of the transaction. If an asset exchange has commercial substance, a gain or loss is recorded based on the difference between the book value of the asset given up and the market value of the asset received. If an asset exchange lacks commercial substance, no gain or loss is recorded, and the asset received is recorded based on book value of the asset given up.

**A. Exchange with Commercial Substance: A Loss**

When the book value of the assets given up (cash paid plus book value of the old equipment) is more than the market value of the equipment received, a loss is recorded. Entry: debit the new equipment for market value, debit Loss on Exchange of Assets (difference between the book value of the assets given up and the market value of the new asset), debit Accumulated Depreciation for the old equipment, credit Equipment (old) for cost of the old equipment, credit cash for the cash paid.

**B. Exchange with Commercial Substance: A Gain**

When the market value of the equipment received is more than the book value of the assets given up (cash paid plus book value of the old equipment), a gain is recorded. Entry: debit the new equipment for market value, debit Accumulated Depreciation for the old equipment, credit Equipment (old) for cost of the old equipment, credit cash for the cash paid, and credit Gain on Exchange of Assets for the gain (difference between market value of the new asset and the book value of the assets given up).

**C. Exchange without Commercial Substance**

If the transaction lacks commercial substance, any gain or loss which would have been recorded when the transaction had commercial substance is not recorded. The unrecognized gain is subtracted from the new asset’s market value to determine its cost basis. The cost basis of the new asset also can be computed by summing the book values of the assets given up.
FORMULAS FOR DEPRECIATION METHODS

1. STRAIGHT LINE

\[
\text{Annual Depreciation} = \frac{\text{Cost} - \text{Estimated salvage}}{\text{Estimated useful life}}
\]

2. UNITS OF PRODUCTION

   a) \[
   \frac{\text{Cost} - \text{Estimated salvage}}{\text{Predicted units of production}} = \text{Cost per Unit}
   \]

   b) \[
   \text{CPU} \times \text{units produced in period} = \text{Depreciation for PERIOD}
   \]

   (In last year, depreciate to estimated salvage value; never depreciate below this amount.)

3. DOUBLE-DECLINING BALANCE

Book Value (beginning of year) \times \text{RATEx} = \text{Depreciation (for that year)}

*\text{RATEx} \rightarrow \text{The rate used is constant and it is twice what the straight line rate would have been for this asset.}

(In the last year, depreciate to estimated salvage value; never depreciate below this amount.)