MODULE 6: ACCOUNTING FOR FIXED ASSETS
Chapters 12 & 16

Learning Objectives:		Topic*	Ch & Time
6.1	Explain the concept of and calculate a company's cost of capital.	F	Ch 12 pp.343-350 2 hours
6.2	Use net present value concepts to make investment decisions.	F	
6.3	Explain, record and report long-term asset purchases.	F	Ch 16 6 hours
6.4	Calculate and record depreciation, depletion and amortization and explain the impact on the financial statements.	F	
6.5	Record the sale and disposal of fixed assets and the impact on the financial statements.	F	
6.6	Record and report transactions involving non-operational investments.	F	

* F: Financial Accounting; M: Managerial Accounting; A: Financial Statement Analysis

Module 6 Total Hours = 8

NOTES:

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LEARNING OBJECTIVE 6.1:

Explain the concept of and calculate a company's cost of capital.

Capital Budgeting - a process used for analysis and selection of the long-term investments of a business.

Obtain capital in three ways:

1. Retained Earnings (equity financing)
2. Selling stock (equity financing)
3. Issuing debt (debt financing)

Once the expenditure is identified, the firm has to generate a satisfactory rate of return for the company. A company's cost of capital is often calculated as the weighted average cost of its debt and equity financing.

COST OF CAPITAL EXAMPLE:

Capital Structure:	Assets	=	Liabilities	+	Owner's Equity
	$4,000,000	=	$1,000,000	+	$3,000,000

Required Returns:

Liabilities	12%
Owner's Equity	16%

Financing Proportions:

Liabilities	$1,000,000	1/4
Owner's Equity	$3,000,000	3/4
Total	$4,000,000	

Cost of Capital = Weighted average cost of financing
Cost of Capital = (Liability proportion X Liability required return) + (Owners' Equity Proportion X Owners' equity required return)
Cost of Capital = (1/4 X 12%) + (3/4 X 16%) = 15%

Practice Problem

Russell Corporation's capital structure consists of $2,690,000 of assets and $1,600,000 of liabilities. Joe Russell, the corporation's CEO and largest shareholder, says that the debt has average interest rate of 9 percent and that shareholders want a 16 percent return.

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LEARNING OBJECTIVE 6.2:

Use net present value concepts to make investment decisions.

Net Present Analysis - a method of evaluating investments that uses the time value of money to assess whether the investment's expected rate of return is greater than the company's cost of capital.

http://www.investopedia.com/video/play/what-is-net-present-value/

Four Step Process:

1. Estimate the timing and amount of all cash inflows and outflows associated with the potential investment over its anticipated life.
2. Calculate the present value of the expected future cash flows using the company's cost of capital as the discount rate. This represents the Maximum Price the firm should pay if it wants to earn its Cost of Capital return.
3. Compute the net present value by subtracting the initial cash outflows necessary to acquire the asset from the present value of the future cash flows. This process compares the Maximum Price to the asking Price of the asset.
4. Decide to make or reject the investment in the capital asset. If the net present value is zero or positive, the proposed investment is acceptable. If the NPV is negative, the company should reject the project. In other words, only make the investment if the asking Price is less than the Maximum Price.

Even Cash Flow Example

A company wants to acquire equipment worth $750,000. The equipment is going to save the firm $250,000 per year over the next four years. The cost of capital (aka hurdle rate) is 10%. Should the firm purchase the equipment?

1. Identify Cash flows

	N=0	N=1	N=2	N=3	N=4
Cash Outflows	(750,000)				
Cash Inflows		250,000	250,000	250,000	250,000

2. Find the present value of the future expected cash flows. This represents the Maximum Price the company should pay if it wants to earn the Cost of Capital Return.

   ANN= 250,000; c=1; n=4; FV=0; r=10; PV=792,466.36

3. Compute the net present value. Compare the Maximum Price to the Price of the asset.

Present value of future cash flows	792,466
Less: initial investment	750,000
Net present value	$42,466

4. Accept or reject the proposal

   Accept because the NPV is positive. Price is less than Maximum Price.

Uneven Cash Flow Example

Assume that the $750,000 equipment is expected to generate the following cash flows:

Year 1	$300,000
Year 2	$260,000
Year 3	$240,000
Year 4	$200,000

1. Cash inflows listed above with a cash outflow in year 0 of ($750,000)

2. Find the present value of future expected cash flows (Maximum Price)

c	n	r	ANN	FV	PV
1	1	10	0	300,000	272,727
1	2	10	0	260,000	214,876
1	3	10	0	240,000	180,316
1	4	10	0	200,000	136,603
Total					804,522

3. Compute Net Present Value. Compare Maximum Price to asking Price.

Present value of cash flows	804,522
Less: Initial investment	750,000
NPV	54,522

4. Accept or reject

Accept because the NPV is positive. Asking Price is less than Maximum Price.

Practice Problem:

Gerard, a not-for-profit entity, is considering the acquisition of a baseball winder that costs $46,200. The baseball winder has an expected life of 10 years and is expected to reduce production costs by $8,857 a year. Gerard's hurdle rate is 11 percent. What is the net present value of this project? Should Gerard undertake this investment? Why?

Practice Problem E12.8 (from text)

Murdock Company, a not-for-profit enterprise, is contemplating the acquisition of a new copier on December 30, 2013. The copier costs $42,600, has an estimated life of six years, and is expected to save paper and time, as well as reduce repair cost. The cash Murdock expects to save as a result of buying the copier over the next six years is as follows:

2014	$14,000
2015	$12,000
2016	$10,000
2017	$8,000
2018	$6,000
2019	$4,000

What is the maximum price Murdock should pay for the copier if its hurdle rate is 15%? Calculate the net present value of the new copier using a 12 percent hurdle rate. Should Murdock Company buy the copier? Why?

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LEARNING OBJECTIVE 6.3:

Explain, record and report long-term asset purchases.

Capital Expenditure (capitalize) - creates the expectation of future benefits that apply beyond the current accounting period.

Revenue Expenditure (expense) - provide benefits exclusively during the current accounting period.

$ Recommended Textbook Problem: E16.3

LEARNING OBJECTIVE 6.4:

Calculate and record depreciation, depletion and amortization and explain the impact on the financial statements.

The three depreciation models used in this module are straight-line, units-of-production, and double declining balance. This section starts off with going over the difference between capital and revenue expenditures. We depreciate a capital expenditure over time whereas we expense a revenue expenditure during the current accounting period.

Discussion Question? Why might a company have an incentive to call an expenditure a capital expenditure rather than a revenue expenditure?

Other things to consider….

- When a company purchases land and a building together, the buyer must allocate the total purchase price between the two, because buildings and equipment are depreciable assets, whereas land is not.

- When we capitalize equipment, purchase price, freight charges, sales taxes paid, installation costs, assembly costs, and testing costs are added to the cost of the equipment. Discounts are deducted from the cost.

- When we purchase an insignificant amount of something like a screwdriver for $5, the concept of materiality is used. If an item's dollar amount or its inherent nature is significant enough to influence a financial statement, we capitalize it. For the screwdriver, the $5 does not influence the financial statement so the Accountant will expense it for the current period even though we will use it in future periods.

For all depreciation models the following information is needed.

1. Cost of the asset.
2. Estimated useful life of the asset.
3. Estimated salvage value of the asset.
4. Method of depreciation.

Carrying Value (book value): The remaining undepreciated cost of the plant asset.
Salvage Value: The expected fair market value of a plant asset at the end of its useful life.
Depreciable Cost: The difference of the cost minus the salvage value that needs to be expensed.
Useful Life: The period of time over which a business expects to obtain economic benefits from the use of a plant asset.

Practice Problem:

Purchase a delivery truck

Cost of asset:	$22,000
Useful life:	5 years
Salvage Value:	$2,000
Miles driven:	
Year 1:	14,000
Year 2:	23,000
Year 3:	18,700
Year 4:	21,300
Year 5:	23,000

Calculate Straight Line

Year	Annual Depreciation Expense	Accumulated Depreciation	Carrying Value
1			
2			
3			
4			
5			

NOTES:

Calculate Units-of-Production

Year	Annual Depreciation Expense	Accumulated Depreciation	Carrying Value
1			
2			
3			
4			
5			

NOTES:

Calculate Double Declining Balance

Year	Annual Depreciation Expense	Accumulated Depreciation	Carrying Value
1			
2			
3			
4			
5			

NOTES:

Depletion uses units-of-production method to calculate depletion expense.

In 2016, Dan the hunter owns land in Western Kansas and uses it to hunt pheasants. One day while hunting, he shot his firearm striking the ground and oil shot into the air! Dan contacted a local oil company to survey his land and they estimated that there was over 200,000,000 barrels of oil that will take 10 years to pump out. The oil company paid Dan $3,000,000 for the oil rights on his land. In 2016 no oil was produced from the land but in 2017, 200,000 barrels were produced.

Record the entry of the acquisition of the oil rights.

Oil Rights
    Cash

What is the depletion rate?

What is the entry for depletion in 2017?

Amortization uses straight line to calculate amortization expense.

On January 1, 2016, Utica Corporation acquired a patent for $500,000. Utica feels that it will use the patent for its legal life of 20 years.

What is the entry to record the amortization of the patent for 2016?

Amortization Expense	25,000	
Patent		25,000

On what financial statement will the patent be reported and how will its value appear on that statement at the end of 2017?

Reported on the Balance Sheet as an asset

Patent	450,000

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LEARNING OBJECTIVE 6.5:

Record the sale and disposal of fixed assets and the impact on the financial statements.

There are different ways to dispose of long term assets.

—Discard, sell, exchange with no cash, and exchange with cash payment.

Losses and gains on sales can be incurred.

Practice Problem:

PCs to Go is selling equipment for $27,000. The original cost of the asset was $80,000, and there was $60,000 in Accumulated Depreciation account at the time of the sale. Record the journal entry below for the sale of equipment.

Practice Problem:

PCs to Go is purchasing a new copier worth $28,000. They are paying $20,000 and exchanging an old copier which initially cost $25,000 and has $15,000 in Accumulated Depreciation account at the time of the sale. Record the journal entry below for the exchange.

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LEARNING OBJECTIVE 6.5:

Record and report transactions involving non-operational investments.

Non-operational investments are made when companies use debt and equity securities of other companies to either manage cash of their company or create operating relationship with other companies.

Investments are classified based on their intended use:

1. **Trading Securities** - Debt and equity securities purchased with idle cash to generate a return on the investment when sold in the very near future.
2. **Available-for-Sale Securities** – Debt and equity securities purchased to generate a return on the investments until cash is needed at some point in the future (typically more than one year).
3. **Held-to-Maturity Securities** – Debt securities purchased with the intent of holding these securities until they mature.
4. **Equity Method Securities** - Equity securities (common stock) purchased with the intent of having a significant influence of another corporation's management (20-50% of stock).
5. **Consolidated Financial Statements** – When one corporation gains control over another corporation and the two legal entities are reported as one economic entity.

Three ways to account for and report investments:

1. **Historic Cost** - Held-to-Maturity Securities
2. **Mark-to-Market** – Trading Securities, Available-for-Sale Securities
3. **Market Value to Fair Value** - Trading Securities, Available-for-Sale Securities, Held-to-Maturity Securities, and Equity Method Securities

The focus is on the use of Mark-to-Market and Market Value Methods when applied to Trading Securities and Available-for-Sale Securities.

Mark-to-Market Problem – Available-for-Sale

Available-for-Sale Portfolio of Securities 12/31/15

	Cost	Market
Investment A	$100,000	$105,000
Investment B	50,000	43,000
Investment C	200,000	210,000
	$350,000	$358,000

Invest-AFS	
$350,000	

Make the entry to apply Mark-to-Market and then show how the financial statements would reflect these entries.

May 5, 2016 Make entry for the sale of Investment B for $47,000.

Dec 31, 2016 Portfolio of AFS Investments at cost and market.

	Cost	Market
Investment A	$100,000	$104,000
Investment C	200,000	202,000
	$300,000	$306,000

Make the needed entries and report how the transactions involving Available-for-Sale Investments would be reported on the 2016 financial statements.

October 1, 2017 Make the entry for the sale of Investment A for $114,000 and Investment C for 195,000.

December 31, 2017 Make the needed entries and report how the transactions involving AFS Investments would be reported on the 2017 Financial Statements.

Fair Value Problem

Using the same information as above make the required entries and prepare the financial statements.