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MODULE 4: ACCOUNTING FOR SALES AND INVENTORY
Chapters 9 & 10

Learning Objectives:		Topic*	Ch & Time
4.1	Describe the criteria used to determine revenue recognition.	F	Ch 10 pp.278-296 6 hours
4.2	Record revenue-related transactions.	F	
4.3	Explain the accounting methods used to determine the value of accounts receivable to be reported on the balance sheet and describe the effect on the income statement.	F	
4.4	Record transactions for accounts receivable, including uncollectible accounts, write-offs, and recoveries.	F	
4.5	Identify and describe the cost flow assumptions for inventory and explain the impact on the balance sheet and income statement.	F	
4.6	Calculate cost of goods sold and ending inventory using LIFO and FIFO inventory costing methods.	F	
4.7	Explain how an activity-based costing system operates, including the identification of activity cost pools, and the selection of cost drivers.	M	Ch 9 pp.249-259 4 hours
4.8	Explain the flow of costs through the manufacturing accounts used in product costing.	M	
4.9	Compute a predetermined overhead rate, and explain its use in job-order costing.	M	
4.10	Determine whether manufacturing overhead is over/under-applied.	M	
4.11	Prepare journal entries to record the costs of direct material, direct labor, and manufacturing overhead in a job-order costing system.	M	
4.12	Prepare a schedule of cost of goods manufactured, a schedule of cost of goods sold, and an income statement for a manufacturer.	M	

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

Module 4 Total Hours = 10

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NOTES:

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LEARNING OBJECTIVE 4.1:

Describe the criteria used to determine revenue recognition.

LEARNING OBJECTIVE 4.2:

Record revenue related transactions.

When are revenues recognized?

- Revenues are recognized when earned (we have performed) regardless of when cash is paid.
- Example 1: We provide a service for a client who will pay us next period. This is revenue because we have performed and, therefore, have a right to receive cash in the future.

A/R		XXX	
	Sales		XXX

- Example 2: A client pays us in advance for services to be provided next period. This is not revenue because we have not performed. Rather, we have an obligation to perform services in the future.

Cash		XXX	
	Unearned Revenue		XXX

Later, as the services are performed, we make adjusting entries to record the revenue earned.

Unearned Revenue		XXX	
	Sales		XXX

- Example 3: We provide, and are paid for, services. This is revenue because we have performed.

Cash		XXX	
	Sales		XXX

What are the revenue accounts used to record revenue process activities?

- Sales—revenues earned (gross price)
- Sales returns and allowances—gross price of merchandise returned or allowances given to the buyer
- Sales discount—amount of cash discounts granted to customers

(See transaction illustrations, pages 281-284)

Thought Question: Why not simply credit sales for the return?

- Management needs to track the amount of sales that are subsequently returned.

Thought Question: Why not simply credit sales for the discount?

- Unlike the situation with purchases, management needs to know the amount of discounts TAKEN by customers in order to evaluate credit policies.

LEARNING OBJECTIVE 4.3:

Explain the accounting methods used to determine the value of accounts receivable to be reported on the balance sheet and describe the effect on the income statement.

How are the results of revenue process activities communicated to users?

- Income statement—shows net sales, uncollectible accounts expense (as part of selling and administrative expenses for external purposes), and cost of goods sold.
- Balance sheet—shows the net realizable value of accounts receivable.
- Statement of cash flows (direct)—shows the cash received from customers.

(See Exhibit 10.7, pg. 296)

How can cash receipts from customers be estimated?

Beginning accounts receivable (balance sheet)
+ Net sales (income statement)
= Maximum amount owed by customers
- Cash received from customers (calculated)
= Ending accounts receivable (balance sheet)

Sample Problem #2.

Allen Company began the year with a $28,000 balance in its accounts receivable account. At the end of the period, this balance had increased to $30,000. During the period, Allen Company wrote off one customer's account in the amount of $5,000. Sales during the year were $400,000 and sales discounts were $4,000. Assuming these are the only activities affecting this account during the year, what was the total cash collected from customers?

Accounts Receivable	
28,000	5,000
396,000	389,000
30,000	

LEARNING OBJECTIVE 4.4:

Record transactions for accounts receivable, including uncollectible accounts, write-offs, and recoveries.

Why is it necessary to estimate uncollectible accounts?

- It's a cost of allowing charge accounts.
- Proper matching—we must match the cost (expense) of allowing charge accounts to the revenue earned from charge account sales in the same accounting period.
- Asset definition—if we believe that not all accounts receivables are collectible, then these amounts have no future value and, therefore, are not assets.

Thought Question: Why not simply estimate the amount of uncollectible accounts and subtract it from the amount from sales and accounts receivable? After all, if we can't collect it, it's not a sale or an asset, right?

- There are two problems with this logic. First, the sale was made, we performed with the expectation of receiving something of value in the future. Second, we need to keep uncollectible accounts information separate so management can use it to evaluate credit policies

(See transactions on page 294)

LEARNING OBJECTIVE 4.5:

Identify and describe the cost flow assumptions for inventory and explain the impact on the balance sheet and income statement.

What are cost flow assumptions and why are they necessary?

- A cost flow assumption is a method used to assign costs to cost of goods sold and ending inventory. It saves the company the time and trouble of identifying each individual item in inventory with a particular purchase price (specific identification method).

LEARNING OBJECTIVE 4.6:

Calculate cost of goods sold and ending inventory using LIFO and FIFO inventory costing methods.

What do FIFO and LIFO stand for and how do they work?

- FIFO stands for first-in, first-out. It means that the first costs recorded (first-in) are the first costs expensed to cost of goods sold (first-out).
- LIFO stands for last-in, first-out. It means that the last costs recorded (last-in) are the first costs expensed to cost of goods sold (first-out).
- Do NOT confuse cost flows with product flows. A company that uses LIFO is not necessarily selling the latest items purchased; it is merely assigning the most recent costs incurred to expense. This is a timing issue only. If the company sells its entire inventory, FIFO and LIFO would be the same.

(See exhibits 10.2 and 10.3, page 286, and transactions, pages 287-288)

Sample Problem #1.

Wilson shows the following inventory activity (in chronological order). The selling price per unit is $7. Other operating eaxpenses are $20 and the tax rate is 30 percent.

Activity	Number of Units	Gross Purchase Price
Beginning balance	11	$4
Sale	6	
Purchase	9	$4.50
Sale	3	
Sale	7	
Purchase	5	$5.00
Sale	3	

Required: Determine cost of goods sold, gross margin, net income, and ending inventory using FIFO. Then, repeat using LIFO.

Answer FIFO:

Purchases of inventory	Cost of Goods Sold	Inventory remaining
Beginning balance		11 * $4 = $44
	6 * $4 = $24	5 * $4 = $20
9 * $4.50 = $40.50		5 * $4 = $20 9 * $4.50 = $40.50
	3 * $4 = $12	2 * $4 = $8 9 * $4.50 = $40.50
	2 * $4 = $8 5 * $4.50 = $22.50	4 * $4.50 = $18
5 * $5 = $25		4 * $4.50 = $18 5 * $5 = $25
	3 * $4.50 = $13.50	1 * $4.50 = $4.50 5 * $5 = $25

Beginning inventory	**$44.00**	**Sales (19 * $7)**	**$133.00**
Plus purchases	**65.00**	**Cost of goods sold**	**80.00**
Cost of goods available for sale	**$109.50**	**Gross margin**	**$53.00**
Less cost of goods sold	**80.00**	**Operating expenses**	**20.00**
Ending inventory	**$29.50**	**NIBT**	**$33.00**
		Tax (30%)	**9.90**
		Net income	**$23.10**

Answer LIFO:

Purchases of inventory	Sales of inventory	Inventory remaining
Beginning balance		11 * $4 = $44
	6 * $4 = $24	5 * $4 = $20
9 * $4.50 = $40.50		5 * $4 = $20 9 * $4.50 = $40.50
	3 * $4.50 = $13.50	5 * $4 = $20 6 * $4.50 = $27
	6 * $4.50 = $27 1 * $4 = $4	4 * $4 = $16
5 * $5 = $25		4 * $4 = $16 5 * $5 = $25
	3 * $5 = $15	4 * $4 = $16 2 * $5 = $10

Beginning inventory	**$44.00**	**Sales (19 * $7)**	**$133.00**
Plus purchases	**65.50**	**Cost of goods sold**	**83.50**
Cost of goods available for sale	**$109.50**	**Gross margin**	**$49.50**
Less cost of goods sold	**83.50**	**Operating expenses**	**20.00**
Ending inventory	**$26.00**	**NIBT**	**$29.50**
		Tax (30%)	**8.85**
		Net income	**$20.65**

LEARNING OBJECTIVE 4.7:

Explain how an activity-based costing system operates, including the identification of activity cost pools, and the selection of cost drivers.

LEARNING OBJECTIVE 4.8:

Explain the flow of costs through the manufacturing accounts used in product costing.

Conversion process is only involved in **manufacturing** businesses.

What are the conversion process activities?

- Schedule production.
- Obtain direct materials.
- Use labor and resources to convert materials into finished goods.
- Store finished goods until sold.

Internal controls:

- Production order – pre-numbered; production cannot begin without production order.
- Materials requisition – issued by production function, materials only released when requisition is received
- Job cost record – cost accounting function, updated daily

WHAT ARE THE COSTS IN THE MANUFACTURING PROCESS?

Direct Materials (DM)

The traceable costs incurred to purchase and receive direct materials.

iPods	Plastic cases, components, processors
Publishing company	Paper, ink, book covers, etc
Automobile manufacturer	Tires, automobile metal parts, etc.
Computer manufacturer	Hard drives, monitors, etc.
Keebler chocolate chip cookies	Chocolate chips, flour, sugar

Direct Labor (DL)

Labor costs of employees who actually manufacture the product. The Keebler Elves' wages would be included in this classification.

Manufacturing Overhead (Everything Else...Not DM or DL)

All product costs other than direct material and direct labor, including indirect materials (see below), indirect labor (employees whose services support manufacturing such as factory janitors and supervisors), factory utilities, factory rent, factory depreciation.

*Indirect materials examples:

iPods	Glue
Publishing company	Glue, printing press lubricants, etc.
Automobile manufacturer	Factory light bulbs, drill bits etc.
Computer manufacturer	Assembly line lubricants, screwdrivers, polishers, etc.
Keebler chocolate chip cookies	Cooking spray

*These indirect materials would be credited out of the asset "Supplies" when placed in production.

From online companion site under "Additional Problems":

E9.1 Backpackers, Inc. plans to manufacture packs for hiking and camping. The following costs will be incurred in the manufacturing process. Classify each cost as one of the following four options by placing the number of the correct answer in the space provided.

DM (Direct materials cost)
DL (Direct labor cost)
MOH (Manufacturing overhead cost)
S&A (Selling and administrative cost)

DM A. Cost of fabric

MOH B. Cost of the factory building

S&A C. Cost of advertising in various outdoor magazines

MOH D. Cost of thread used to sew packs together

MOH E. Cost of shelving to store production supplies

S&A F. Salary of the vice president of sales

DM G. Cost of zippers

S&A H. Wages of sales personnel (salary plus commission)

S&A I. Cost of delivery vehicle

MOH J. Cost of utilities used in the factory building

S&A K. Cost of utilities used in the corporate office

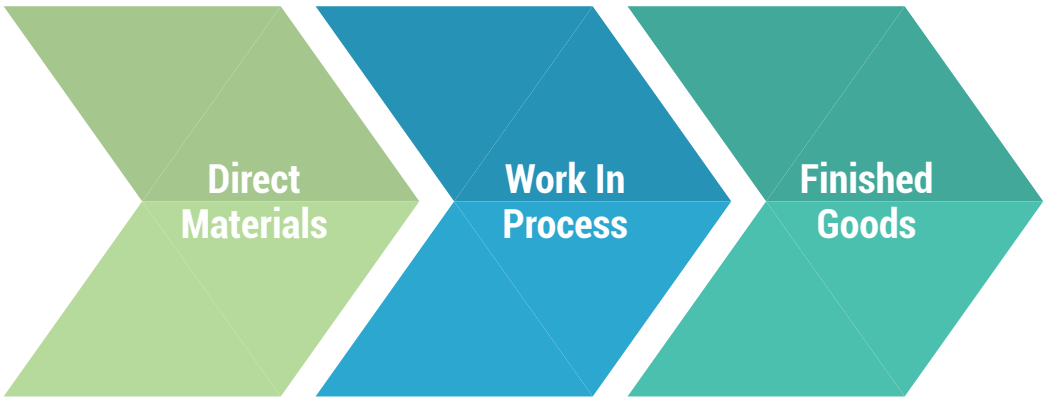
MOH L. Production supervisor's salary

MOH M. Setup costs to change production from one style pack to another

S&A N. Depreciation on delivery vehicle

DL O. Wages of employees working on the assembly line

Controlling accounts for inventory stages:



What is the purpose of the inventory accounts in a manufacturing company and what types of activities cause the accounts to increase and decrease?

Direct (Raw) Materials Inventory – the cost of direct materials on hand; increases when direct materials are purchased; decreases when direct materials are issued into production.

In this chapter, **indirect materials, which cannot be traced, or the cost is small enough that tracing is not warranted will be debited to "**Supplies**".*

Work-in-Process Inventory– the cost of products started, but not completed; increases when direct materials and direct labor are used in production and when manufacturing overhead is assigned to production; decreases when goods are finished and transferred out (cost of goods manufactured)

Finished Goods Inventory – the cost of products finished, but not sold; increases when goods are finished and transferred in; decreases when goods are sold (cost of goods sold)

How would you describe the flow of costs through the inventory accounts?

See Exhibit 9.2, pg. 251

LEARNING OBJECTIVE 4.9:

Compute a predetermined overhead rate, and explain its use in job-order costing.

LEARNING OBJECTIVE 4.10:

Determine whether manufacturing overhead is over/under-applied.

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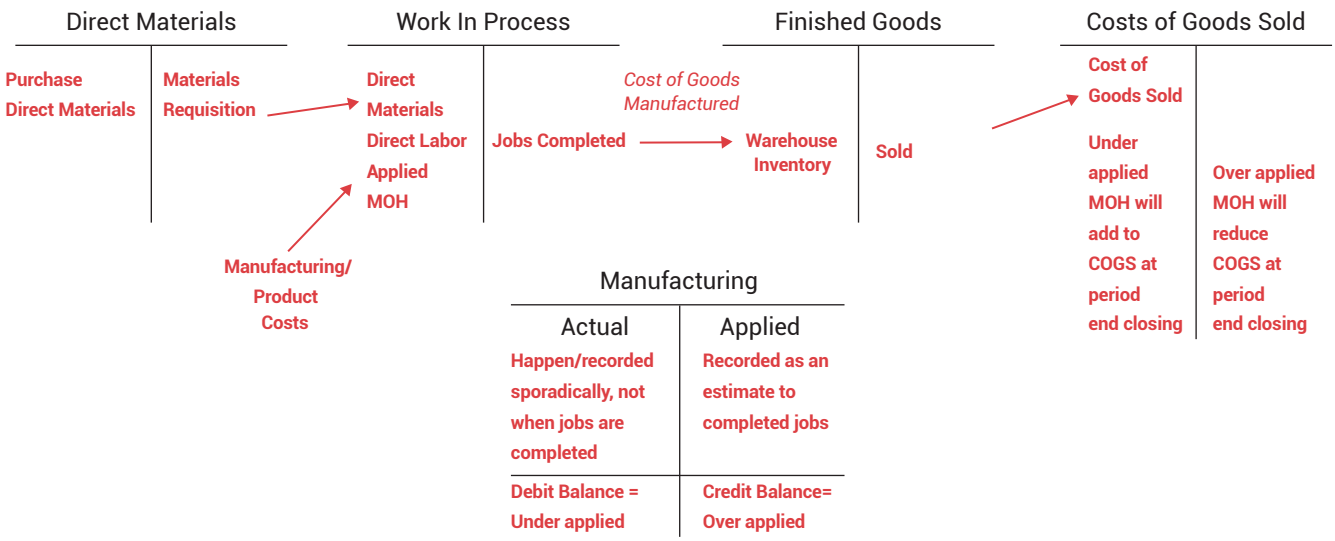

LEARNING OBJECTIVE 4.11:

Prepare journal entries to record the costs of direct material, direct labor, and manufacturing overhead in a job-order costing system.

Direct materials inventory:

Beginning direct materials inventory
+ Purchases of direct materials
= Cost of direct materials available for use
- Direct materials issued into production
= Ending direct materials inventory

Work-in-process inventory:

Beginning work-in-process inventory
+ Direct materials issued into production
+ Direct labor used in production
+ Applied manufacturing overhead
= Cost of goods in process
- Cost of goods manufactured
= Ending work-in-process inventory

Finished goods inventory:

Beginning finished goods inventory
+ Cost of goods manufactured
= Cost of goods available for sale
- Cost of goods sold
= Ending finished goods inventory

Digital drag and drop classification activity:
https://docs.google.com/drawings/d/1pTy10NO8VtVlP8UNnfpvcdoLk0VaWDPGCP8hmD6bBPA/edit?pref=2&pli=1

Digital drag and drop cost flow movement activity:
https://docs.google.com/drawings/d/191DoLeBSFadc4TNmbfERjEmLOycFsntLt0cW5Ok4-20/edit

Rogers Company had inventories at the beginning and end of 2016 as follows:

	January 1, 2016	December 31, 2016
Raw materials inventory	$49,000	$63,000
Work-in-process inventory	106,400	84,000
Finished goods inventory	42,000	91,000

During 2016, Rogers Company purchased direct materials of $560,000, incurred direct labor costs of $280,000, and applied manufacturing overhead of $462,000 to production. Show the flow of costs through the company's inventory account during 2016.

Direct Mat. Inv.	
49,000	
560,000	546,000
63,000	

Work In Process (WIP)	
106,400	
DL 280,000	
MOH 462,000	1,310,400
DM 546,000	
84,000	

Finished Goods	
42,000	
COGM	COGS
1,310,400	1,261,400
91,000	

Lecture Examples

1. Assume ABC Company has a cost pool that varies with the number of machine hours used in production and another that varies with the number of production runs during the period. They must estimate the machine-related costs and the number of machine hours they will use in the coming period. And, they must estimate the production run costs and how many production runs will be required for the coming period. Let's assume that machine-related costs are estimated to be $500,000 and machine hours are estimated at 50,000 and that production run costs are estimated to be $400,000 and that 400 production runs will be required.

a. What are the predetermined overhead rates?

Answer:
The cost per machine hour is $10 ($500,000/50,000). The cost per production run is $1,000 ($400,000/400).

Let's assume the following activity for the month:

	Machine Hours Used	Production Runs Used
Week 1	8,000	125
Week 2	8,400	100
Week 3	8,500	80
Week 4	8,800	130

b. How much overhead would be applied to work-in-process each week?

Answer:
ABC would apply manufacturing overhead to work-in-process as follows:

	Machine Overhead	Production Runs Overhead
Week 1	$80,000	$125,000
Week 2	84,000	100,000
Week 3	85,000	80,000
Week 4	88,000	130,000

2. Crevickas Company had the following account balances at the beginning of the period:

Direct materials inventory	$10,000
Work-in-process inventory	5,200
Finished goods inventory	16,500

Crevickas has only one overhead account and it is assigned to production at the rate of $40 per machine hour. Direct laborers are paid $6 per hour.

The following activities and costs were incurred during the period.

1. 950 direct labor hours were used
2. 175 machine hours were used
3. $20,000 of materials were purchased on acct. ($17,500 were direct materials)
4. $19,000 of direct materials were issued into production
5. $2,500 of indirect materials were issued into production
6. $2,000 of indirect labor was used in production
7. $3,000 of miscellaneous overhead costs were incurred
8. $8,600 of selling and administrative costs were incurred
9. Jobs costing $26,900 were finished during the period
10. Jobs costing $28,400 were sold for $55,000 during the period
11. Determine the over or under applied overhead for the period

Journalize the events and determine the amounts shown on the income statement and the current asset section of the balance sheet. *(T-Accounts are useful for this problem and are provided)*

Answer:

Date:	Account Title:	Debit:	Credit:
1.	WIP INVENTORY	9,500	
	WAGES PAYABLE		9,500
2.	WIP INVENTORY	7,000	
	MOH		7,000
3.	DM INVENTORY	17,500	
	SUPPLIES	2,500	
	ACCOUNTS PAYABLE		20,000
4.	WIP INVENTORY	19,000	
	DM INVENTORY		19,000
5.	MOH	2,500	
	SUPPLIES		2,500
6.	MOH	2,000	
	WAGES PAYABLE		2,000
7.	MOH	3,000	
	MISC. PAYABLE (OR ACCTS PAYABLE)		3,000
8.	SELLING & ADMIN EXPENSE	8,600	
	ACCOUNTS PAYABLE		8,600
9.	FINISHED GOODS INVENTORY	26,900	
	WIP INVENTORY		26,900
10.	ACCOUNTS RECEIVABLE	55,000	
	SALES		55,000
	COGS	28,400	
	FINISHED GOODS INVENTORY		28,400
Clo. Entry	COGS	500	
	MOH		500

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Assets

Cash

Acct. Rec.

10. 55000	

Supplies

3. 2500	5. 2500

Direct Mat. Inventory

10,000	4. 19,000

Work in Process Inv.

5,200 DL 1. 9,500 MOH 2. 7,000 DM 4. 19,000	9. 26,900

Finished Goods Inv.

16,500 9. 26,900	10. 28,400

Liabilities

Acct. Payable

	3. 20,000 7. 3,000 8. 8,600

Wages Payable

	1. 9,500 6. 2,000

Equity

Sales

	10. 55,000

Manufacturing Overhead

Actual	Applied
5. 2,500 6. 2,000 7. 3,000	2. 7,000
$500 under applied	Close MOH $500

Cost of Goods Sold

10. 28,400 Close MOH $500	

Selling and Admin. Expenses

8. 8,600	

LEARNING OBJECTIVE 4.12:

Prepare a schedule of cost of goods manufactured, a schedule of cost of goods sold, and an income statement for a manufacturer.