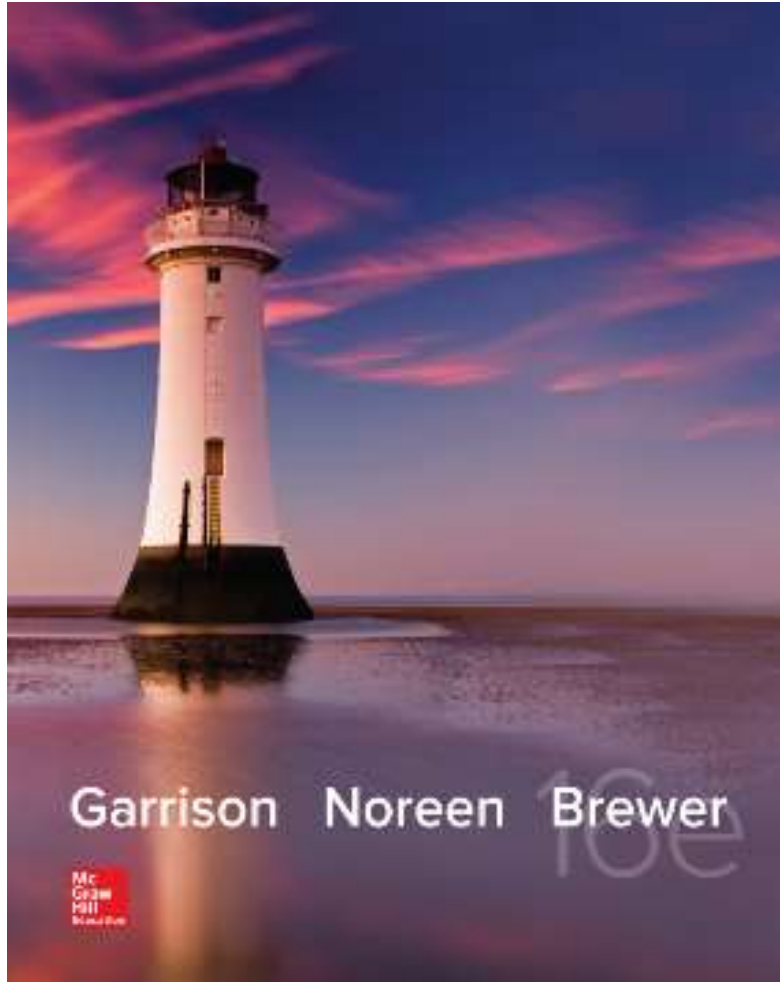


Managerial Accounting

Sixteenth Edition



Chapter 3

Job-Order Costing: Cost Flows and External Reporting

Important Vocabulary Terms – Part 1

There are seven important vocabulary terms that were introduced in the previous chapter.

- **Job-order costing** – A costing system used in situations where many different products, jobs, or services are produced each period.
- **Absorption costing** – A costing method that includes all manufacturing costs—direct materials, direct labor, and both variable and fixed manufacturing overhead—in the cost of a product.

Important Vocabulary Terms – Part 2

The equation shows how to calculate the predetermined overhead rate.

- **Allocation base** – A measure of activity such as direct labor-hours or machine-hours that is used to assign costs to cost objects.
- **Predetermined overhead rate** – A rate used to charge manufacturing overhead cost to jobs that is established in advance for each period. It is computed using the following equation:
 - $\text{Predetermined overhead rate} = \text{Estimated total manufacturing overhead cost} \div \text{Estimated total amount of the allocation base}$

Important Vocabulary Terms – Part 3

(1 of 2)

The equation for applying the overhead is also shown.

- **Overhead application** – the process of assigning overhead costs to specific jobs using the following formula:
 - Overhead applied to a particular job =
Predetermined overhead rate × Amount of allocation base incurred by the job

Important Vocabulary Terms – Part 3

(2 of 2)

- **Normal costing** – A costing system in which overhead costs are applied to a job by multiplying a predetermined overhead rate by the actual amount of the allocation base incurred by the job.
- **Job cost sheet** – A form that records the direct materials, direct labor, and manufacturing overhead cost charged to a job.

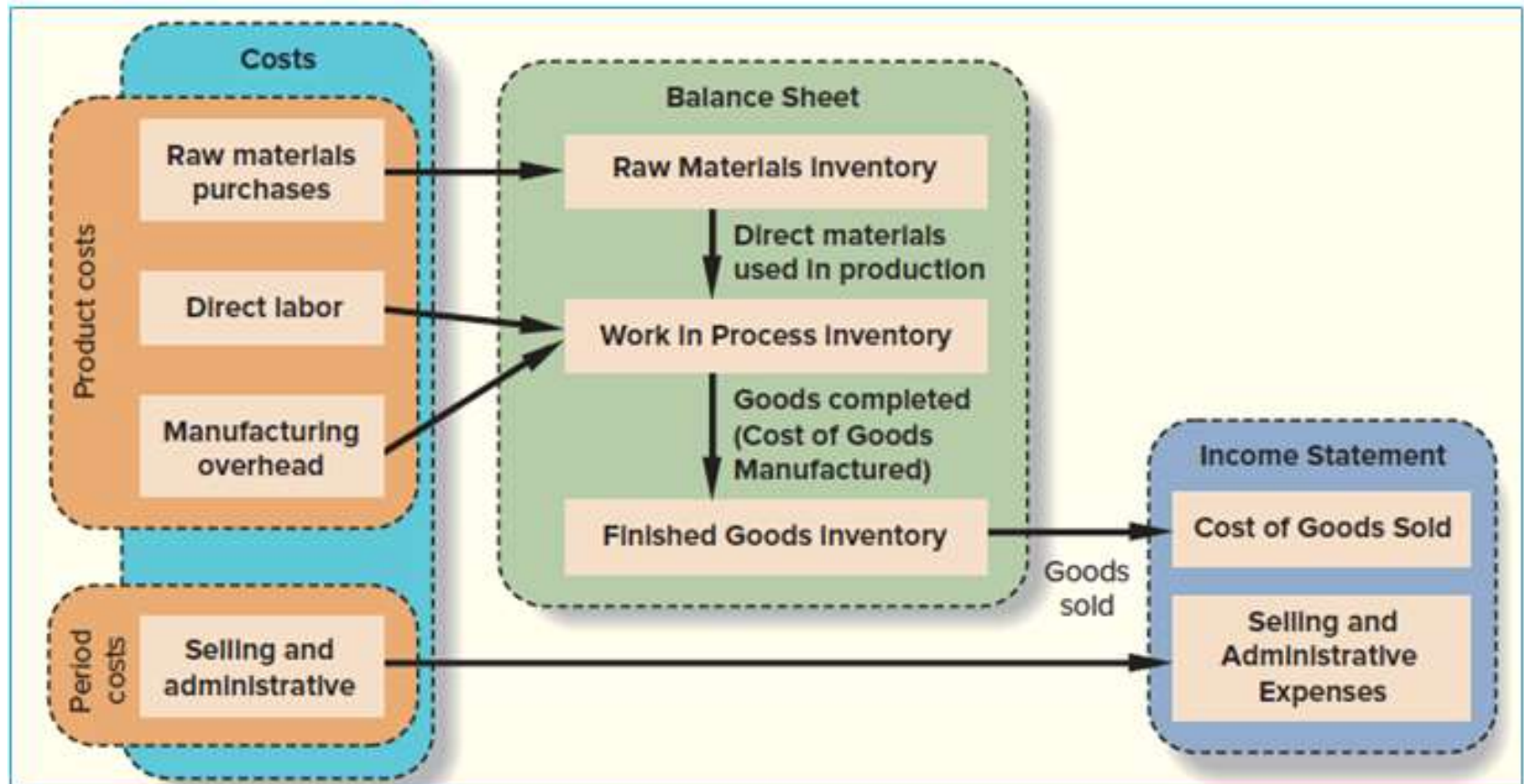
Learning Objectives 1 and 2

- Learning Objective 1: Understand the flow of costs in the job-order costing system and prepare appropriate journal entries to record costs.
- Learning Objective 2: Use T-accounts to show the flow of costs in a job-order costing system.

Flow of Costs: Key Definitions

- 1. Raw materials** include any materials that go into the final product.
- 2. Work in process** consists of units of production that are only partially complete and will require further work before they are ready for sale to customers.
- 3. Finished goods** consist of completed units of product that have not been sold to customers.
- 4. Cost of goods manufactured** includes the manufacturing costs associated with the goods that were finished during the period.

Flow of Costs: a Conceptual Overview



Job-Order Costing: The Flow of Costs (1 of 2)

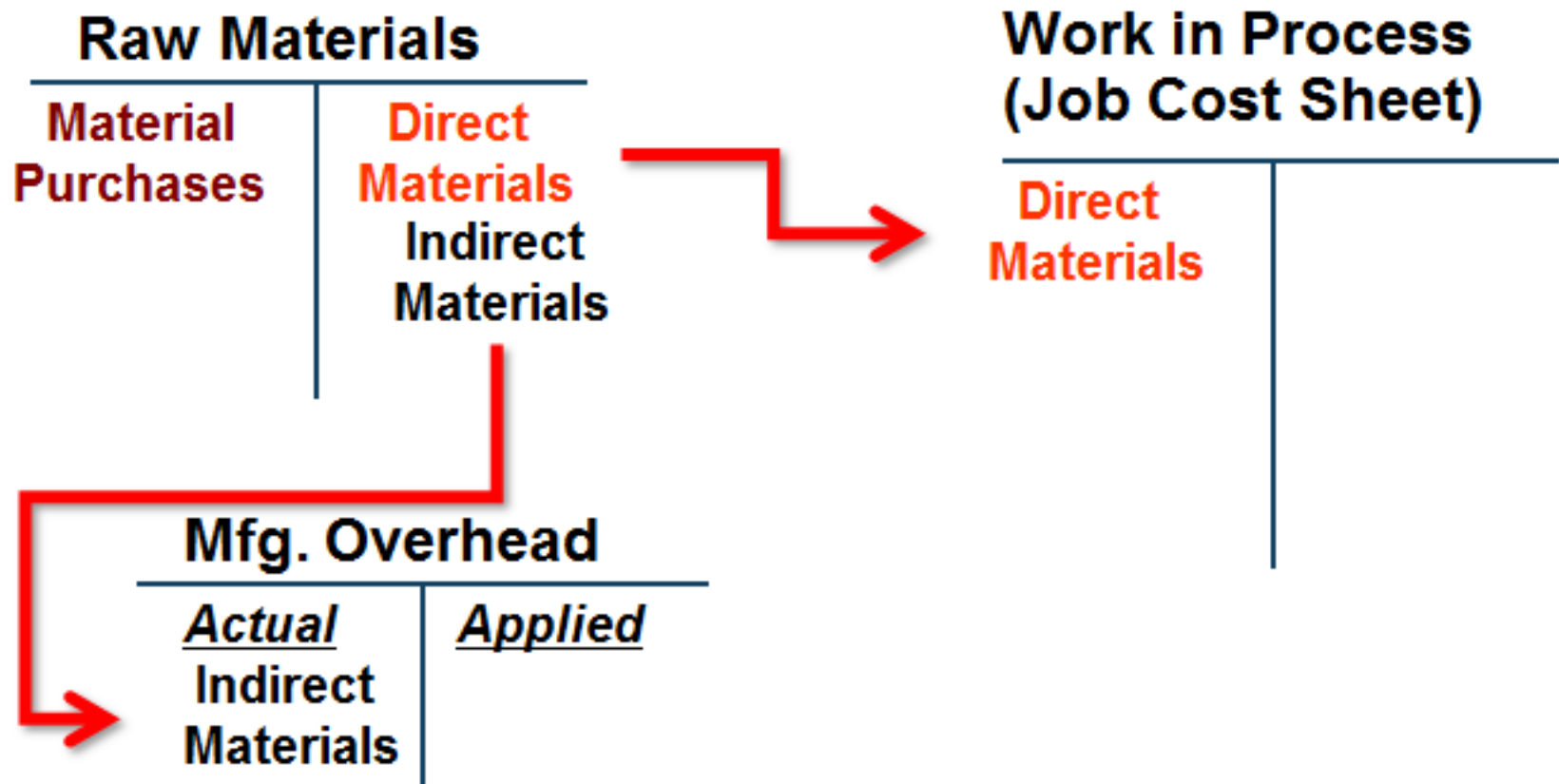
- To illustrate the cost flows within a job-order costing system, we will record Ruger Corporation's transactions for the month of April. Ruger is a producer of gold and silver commemorative medallions and it worked on only two jobs in April.
 - Job A, a special minting of 1,000 gold medallions commemorating the invention of motion pictures, was started during March and completed in April. As of March 31, Job A had been assigned \$30,000 in manufacturing costs, which corresponds with Ruger's Work in Process balance on April 1 of \$30,000.

Job-Order Costing: The Flow of Costs (2 of 2)

- Job B, an order for 10,000 silver medallions commemorating the fall of the Berlin Wall, was started in April and was incomplete at the end of the month.

Purchase of Raw Materials – T Accounts

Purchase of raw materials in T-account form.



Purchase of Raw Materials – Journal Entry

Purchase of raw materials in journal entry form -- On April 1, Ruger Corporation had \$7,000 in raw materials on hand. During the month, the company purchased on account an additional \$60,000 in raw materials.

(1)

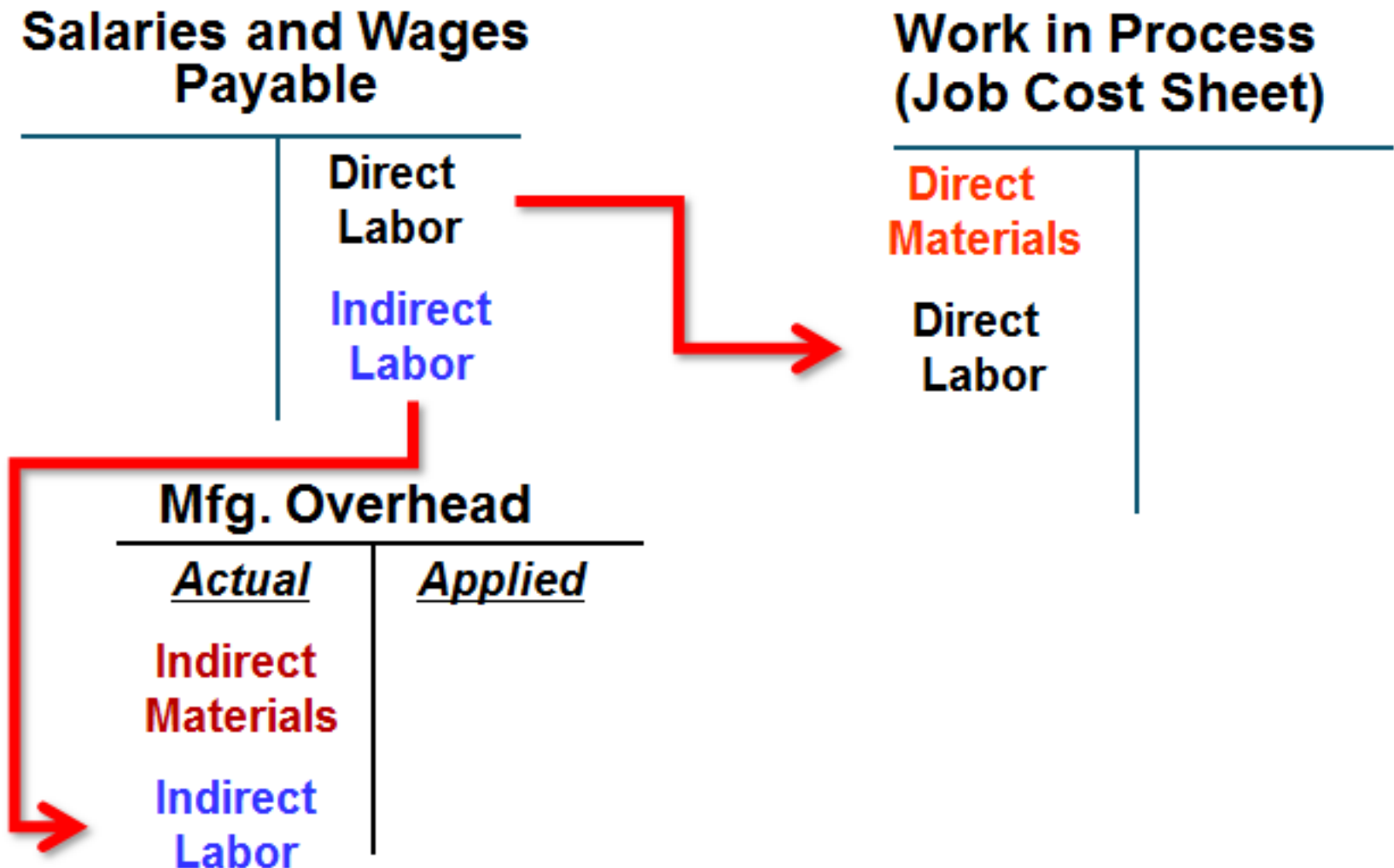
Raw Materials	60,000	
Accounts Payable		60,000

Issue of Direct and Indirect Materials

During April, *materials requisition forms* were prepared to authorize withdrawing \$52,000 in raw materials from the storeroom for use in production. These raw materials included \$50,000 of direct and \$2,000 of indirect materials. Entry (2) records issuing the materials to the production departments.

(2)		
Work in Process	50,000	
Manufacturing Overhead	2,000	
Raw Materials		52,000

Recording Labor Cost: T-Account



Recording Labor Cost: Journal Entry

In April, the employee *time tickets* (which provide hourly summaries of each employee's activities throughout the day) included \$60,000 recorded for direct labor and \$15,000 for indirect labor. The following entry summarizes these costs:

(3)			
Work in Process	60,000		
Manufacturing Overhead	15,000		
Salaries and Wages Payable		75,000	

Recording Actual Manufacturing Overhead Costs: T-Account

Salaries and Wages Payable		Work in Process (Job Cost Sheet)	
	Direct Labor	Direct Materials	
	Indirect Labor	Direct Labor	
Mfg. Overhead			
<u>Actual</u>	<u>Applied</u>		
Indirect Materials			
Indirect Labor			
Other Overhead			

Recording Actual Manufacturing Overhead Costs: Journal Entry

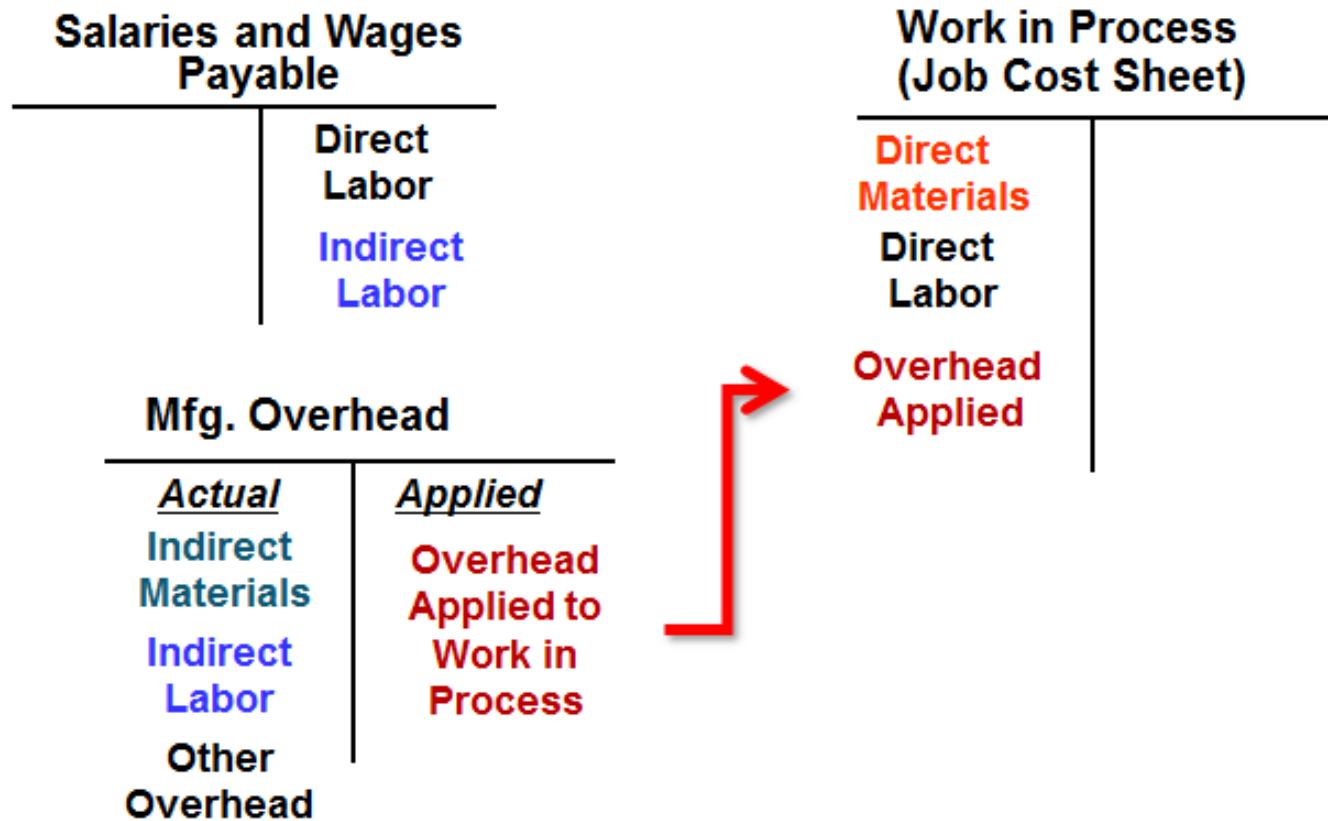
Assume that Ruger Corporation incurred the following general factory costs during April:

1. Utilities (heat, water, and power) \$21,000
2. Rent on factory equipment \$16,000
3. Miscellaneous factory overhead costs \$3,000

(4)		
Manufacturing Overhead	40,000	
Accounts Payable*		40,000

*Other accounts such as Cash may also be credited

Applying Manufacturing Overhead Costs to Work in Process: T-Account



If actual and applied manufacturing overhead are not equal, a year-end adjustment is required.

Applying Manufacturing Overhead Costs to Work in Process: Journal Entry

Assume that Ruger Corporation's predetermined overhead rate is \$6 per machine-hour. Also assume that during April, 10,000 machine-hours were worked on Job A and 5,000 machine-hours were worked on Job B (a total of 15,000 machine-hours). Thus, \$90,000 in overhead cost ($\$6 \text{ per machine-hour} \times 15,000 \text{ machine-hours} = \$90,000$) would be applied to Work in Process. The following entry records the application of Manufacturing Overhead to Work in Process:

(5)		
Work in Process	90,000	
Manufacturing Overhead		90,000

Accounting for Nonmanufacturing Costs

Nonmanufacturing costs are not assigned to individual jobs, rather they are expensed in the period incurred.

Examples:

1. Salary expense of employees who work in a marketing, selling, or administrative capacity are expensed in the period incurred.
2. Advertising expenses are expensed in the period incurred.

Nonmanufacturing Costs (1 of 2)

Ruger Corporation incurred \$30,000 in selling and administrative salary costs during April. The following entry summarizes the accrual of those salaries:

(6)		
Salaries Expense	30,000	
Salaries and Wages Payable		30,000

Depreciation on office equipment during April was \$7,000. The entry is as follows:

(7)		
Depreciation Expense	7,000	
Accumulated Depreciation		7,000

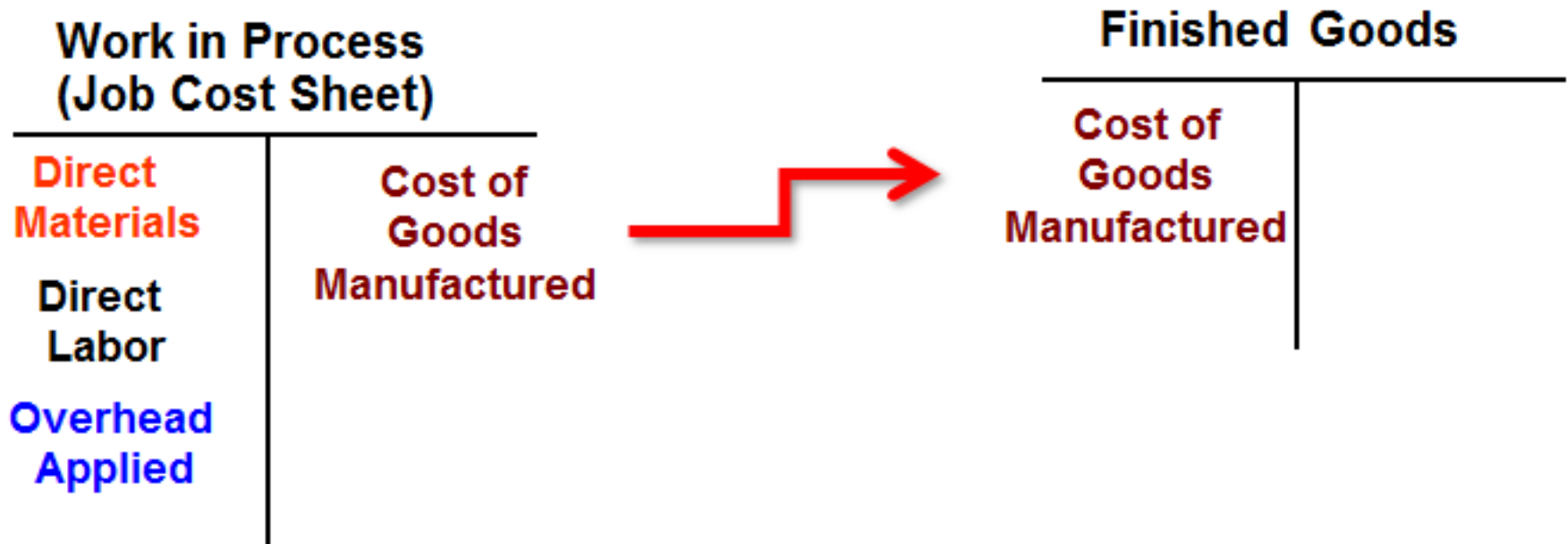
Nonmanufacturing Costs (2 of 2)

Advertising was \$42,000 and other selling and administrative expenses in April totaled \$8,000. The following entry records these items:

(8)		
Advertising Expense.....	42,000	
Other Selling and Administrative Expense	8,000	
Accounts Payable*		50,000

*Other accounts such as Cash may also be credited

Transferring Completed Jobs from Work in Process to Finished Goods: T-Account



Transferring Completed Jobs from Work in Process to Finished Goods: Journal Entry (1 of 2)

Job A was completed during April and Job B was incomplete at the end of the month. Thus, the following entry transfers the cost of Job A from Work in Process to Finished Goods:

		(9)		
Finished Goods		158,000		
Work in Process			158,000	

Transferring Completed Jobs from Work in Process to Finished Goods: Journal Entry (2 of 2)

Because Job B was not completed by the end of the month, its assigned costs will remain in Work in Process and carry over to the next month. If a balance sheet were prepared at the end of April, the cost accumulated thus far on Job B (\$72,000) would appear in the asset account Work in Process.

Transferring Finished Goods to Cost of Goods Sold: T Account

Work in Process (Job Cost Sheet)

**Direct
Materials**

**Direct
Labor**

**Overhead
Applied**

**Cost of
Goods
Mfd.**

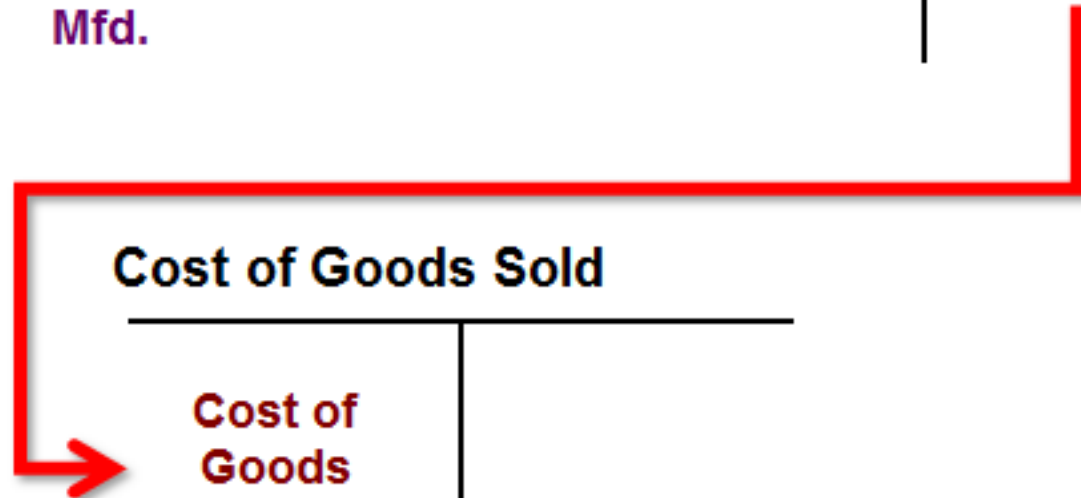
Finished Goods

**Cost of
Goods
Mfd.**

**Cost of
Goods
Sold**

Cost of Goods Sold

**Cost of
Goods
Sold**



Transferring Finished Goods to Cost of Goods Sold: Journal Entry

For Ruger Corporation, we will assume 750 of the 1,000 gold medallions in Job A were shipped to customers by the end of the month for total sales revenue of \$225,000. Because 1,000 units were produced and the total cost of the job from the job cost sheet was \$158,000, the unit product cost was \$158. The following journal entries would record the sale (all sales were on account):

(10)		
Accounts Receivable	225,000	
Sales		225,000
(11)		
Cost of Goods Sold	118,500	
Finished Goods		118,500

Learning Objective 3

Prepare schedules of cost of goods manufactured and cost of goods sold and an income statement.

Schedules of Cost of Goods Manufactured and Cost of Goods Sold

The schedules contains three types of costs:

1. direct materials
2. direct labor
3. manufacturing overhead

The schedules calculate:

1. the cost of raw material and direct labor used in production and the amount of manufacturing overhead **applied** to production.
2. the manufacturing costs associated with goods that were finished **during the period**.

Product Cost Flows – Part 1 (1 of 2)

- Raw material purchases made during the period are added to beginning raw materials inventory. The ending raw materials inventory is deducted to arrive at the **raw materials used in production.**
- As items are removed from raw materials inventory and placed into the production process, they are called **direct materials.**
- Raw Materials
 - Beginning raw materials inventory + Raw materials purchased = Raw materials available for use in production

Product Cost Flows – Part 1 (2 of 2)

- Raw materials available for use in production – Ending raw materials inventory = **Raw materials used in production**
- Manufacturing Costs
 - **Raw materials used in production → Direct materials**
- Work In Process

Product Cost Flows – Part 2 (1 of 2)

Direct labor used in production and manufacturing overhead applied to production are added to direct materials to arrive at **total manufacturing costs**.

- Raw Materials
 - Beginning raw materials inventory + Raw materials purchased = Raw materials available for use in production
 - Raw materials available for use in production – Ending raw materials inventory = Raw materials used in production

Product Cost Flows – Part 2 (2 of 2)

- Manufacturing Costs
 - Direct materials + **Direct labor + Mfg. overhead applied = Total manufacturing costs**
- Work In Process

Product Cost Flows – Part 3 (1 of 2)

Total manufacturing costs are added to the beginning work in process to arrive at **total work in process**.

- Raw Materials
 - Beginning raw materials inventory + Raw materials purchased = Raw materials available for use in production
 - Raw materials available for use in production – Ending raw materials inventory = Raw materials used in production

Product Cost Flows – Part 3 (2 of 2)

- Manufacturing Costs
 - Direct materials + Direct labor + Mfg. overhead applied = **Total manufacturing costs**
- Work in Process
 - Beginning work in process inventory + **Total manufacturing costs** = Total work in process for the period

Product Cost Flows – Part 4 (1 of 2)

The ending work in process inventory is deducted from the total work in process for the period to arrive at the **cost of goods manufactured**.

- Raw Materials
 - Beginning raw materials inventory + Raw materials purchased = Raw materials available for use in production
 - Raw materials available for use in production – Ending raw materials inventory = Raw materials used in production

Product Cost Flows – Part 4 (2 of 2)

- Manufacturing Costs
 - Direct materials + Direct labor + Mfg. overhead applied = Total manufacturing costs
- Work in Process
 - Beginning work in process inventory + Total manufacturing costs = Total work in process for the period
 - Total work in process for the period – Ending work in process inventory = **Cost of goods manufactured**

Product Cost Flows – Part 5 (1 of 2)

The cost of goods manufactured is added to the beginning finished goods inventory to arrive at cost of goods available for sale. The ending finished goods inventory is deducted from this figure to arrive at **cost of goods sold**.

- Work In Process
 - Beginning work in process inventory + Manufacturing costs for the period = Total work in process for the period
 - Total work in process for the period – Ending work in process inventory = **Cost of goods manufactured**

Product Cost Flows – Part 5 (2 of 2)

- Finished Goods
 - Beginning finished goods inventory + **Cost of goods manufactured** = Cost of goods available for sale
 - Cost of goods available for sale – Ending finished goods inventory = Cost of goods sold

Quick Check 1

Beginning raw materials inventory was \$32,000. During the month, \$276,000 of raw material was purchased. A count at the end of the month revealed that \$28,000 of raw material was still present. What is the cost of direct material used?

- a. \$ 276,000
- b. \$ 272,000
- c. \$ 280,000
- d. \$ 2,000

Answer: c

Beg. raw materials	\$ 32,000
+ Raw materials purchased	<u>276,000</u>
= Raw materials available for use in production	\$ 308,000
- Ending raw materials inventory	<u>28,000</u>
= Raw materials used in production	<u>\$ 280,000</u>

Quick Check 2

Direct materials used in production totaled \$280,000. Direct labor was \$375,000, and \$180,000 of manufacturing overhead was added to production for the month. What were total manufacturing costs incurred for the month?

- a. \$ 555,000
- b. \$ 835,000
- c. \$ 655,000
- d. Cannot be determined.

Answer: b

Direct Materials	\$280,000
+ Direct Labor	375,000
+ Mfg. Overhead Applied	<u>180,000</u>
= Mfg. Costs Incurred for the Month	<u>\$835,000</u>

Quick Check 3

Beginning work in process was \$125,000. Manufacturing costs added to production for the month were \$835,000. There were \$200,000 of partially finished goods remaining in work in process inventory at the end of the month. What was the cost of goods manufactured during the month?

- a. \$ 1,160,000
- b. \$ 910,000
- c. \$ 760,000
- d. Cannot be determined.

Answer: c

Beginning work in process inventory	\$ 125,000
+ Mfg. costs incurred for the period	<u>835,000</u>
= Total work in process during the period	\$ 960,000
- Ending work in process inventory	<u>200,000</u>
= Cost of goods manufactured	<u>\$ 760,000</u>

Quick Check 4

Beginning finished goods inventory was \$130,000. The cost of goods manufactured for the month was \$760,000. And the ending finished goods inventory was \$150,000. What was the cost of goods sold for the month?

- a. \$ 20,000
- b. \$740,000
- c. \$780,000
- d. \$760,000

Answer: b

$$\$130,000 + \$760,000 = \$890,000$$

$$\$890,000 - \$150,000 = \mathbf{\$740,000}$$

Learning Objective 4

Compute underapplied or overapplied overhead cost and prepare the journal entry to close the balance in Manufacturing Overhead to the appropriate accounts.

Key Concepts (1 of 2)

The difference between the overhead cost applied to Work in Process and the actual overhead costs of a period is referred to as either underapplied or overapplied overhead.

- ***Underapplied overhead*** exists when the amount of overhead applied to jobs during the period using the predetermined overhead rate is ***less than*** the total amount of overhead actually incurred during the period.

Key Concepts (2 of 2)

- *Overapplied overhead* **exists when the amount of overhead applied to jobs during the period using the predetermined overhead rate is *greater than* the total amount of overhead actually incurred during the period.**

Overhead Application – Part 1

- PearCo's **actual overhead** for the year was **\$650,000** with a total of **170,000** direct labor hours worked on jobs.
- PearCo's predetermined overhead rate is \$4.00 per direct labor hour.

Overhead Applied During the Period

- Applied Overhead = POHR × Actual Direct Labor Hours
- Applied Overhead = \$4.00 per DLH × 170,000 DLH = **\$680,000**

Overhead Application – Part 2

- PearCo's *actual overhead* for the year was **\$650,000** with a total of *170,000* direct labor hours worked on jobs.
- PearCo's predetermined overhead rate is \$4.00 per direct labor hour.

Overhead Applied During the Period

- Applied Overhead = POHR × Actual Direct Labor Hours
- Applied Overhead = \$4.00 per DLH × 170,000 DLH = **\$680,000**
- PearCo has *overapplied* overhead for the year by \$30,000. What will PearCo do?

Quick Check 5

Tiger, Inc. had actual manufacturing overhead costs of \$1,210,000 and a predetermined overhead rate of \$4.00 per machine hour. Tiger, Inc. worked 290,000 machine hours during the period. Tiger's manufacturing overhead is:

- a. \$50,000 overapplied.
- b. \$50,000 underapplied.
- c. \$60,000 overapplied.
- d. \$60,000 underapplied.

Answer: b

- Overhead Applied
 $\$4.00 \text{ per hour} \times 290,000 \text{ hours} = \$1,160,000$
- Underapplied Overhead
 $\$1,210,000 - \$1,160,000 = \$50,000$

Disposition of Overapplied and Underapplied Overhead – Part 1

Any remaining balance in the Manufacturing Overhead account, such as PearCo's \$30,000 of overapplied overhead, is disposed of in one of two ways:

1. It can be closed to Cost of Goods Sold.
2. It can be closed proportionally to Work in Process, Finished Goods, and Cost of Goods Sold.

Disposition of Overapplied and Underapplied Overhead – Part 2

The journal entry, in T-account form, to close out PearCo's \$30,000 of overapplied overhead into Cost of Goods Sold

PearCo's Cost of Goods Sold		PearCo's Mfg. Overhead	
Unadjusted Balance		Actual overhead costs	Overhead applied to jobs
	\$30,000	\$650,000	\$680,000
Adjusted Balance		\$30,000	\$30,000 overapplied



Disposition of Overapplied and Underapplied Overhead – Part 3

Calculating the allocation of underapplied or overapplied overhead between Work in Process, Finished Goods, and Cost of Goods Sold:

Let's assume the overhead applied in Ending Work in Process Inventory, Ending Finished Goods Inventory, and Cost of Goods Sold is \$68,000, \$204,000, and \$408,000, respectively (total value of accounts \$680,000).

Disposition of Overapplied and Underapplied Overhead – Part 4

In this case, the allocation percentages for Work in Process, Finished Goods, and Cost of Goods would be:

- Ending WIP Inventory = $\$68,000 \div \$680,000 = 10\%$
- Ending Finished Goods Inventory = $\$204,000 \div \$680,000 = 30\%$
- Cost of Goods Sold = $\$408,000 \div \$680,000 = 60\%$

Disposition of Overapplied and Underapplied Overhead – Part 5

The allocation of the \$30,000 of overapplied overhead would be:

	Amount	Percent of Total	Allocation of \$30,000
Work in process	\$ 68,000	10%	\$ 3,000
Finished Goods	204,000	30%	9,000
Cost of Goods Sold	<u>408,000</u>	<u>60%</u>	<u>18,000</u>
Total	<u>\$680,000</u>	<u>100%</u>	<u>\$ 30,000</u>

Disposition of Overapplied and Underapplied Overhead – Part 6

Manufacturing Overhead	30,000	
Work in Process Inventory		3,000
Finished Goods Inventory		9,000
Cost of Goods Sold		18,000

Disposition of Overapplied and Underapplied Overhead – Part 7

In summary, there are two methods for disposing of underapplied and overapplied overhead:

1. Close out to Cost of Goods Sold.
2. Allocate between Work in Process, Finished Goods, and Cost of Goods Sold.

The latter method is considered more accurate, but it is more complex to compute.

Quick Check 6

What effect will the **overapplied** overhead have on net operating income?

- a. Net operating income will increase.
- b. Net operating income will be unaffected.
- c. Net operating income will decrease.

Answer: a

End of Presentation