

## **CHAPTER 2**

### **LEARNING OBJECTIVES**

- 1. DESCRIBE COST SYSTEMS AND THE FLOW OF COSTS IN A JOB ORDER SYSTEM.**
- 2. USE A JOB COST SHEET TO ASSIGN COSTS TO WORK IN PROCESS.**
- 3. DEMONSTRATE HOW TO DETERMINE AND USE THE PREDETERMINED OVERHEAD RATE.**
- 4. PREPARE ENTRIES FOR MANUFACTURING AND SERVICE JOBS COMPLETED AND SOLD.**
- 5. DISTINGUISH BETWEEN UNDER- AND OVERAPPLIED MANUFACTURING OVERHEAD.**

## CHAPTER REVIEW

### Cost Accounting Systems

1. (L.O. 1) **Cost accounting** involves the measuring, recording, and reporting of product costs. Companies determine both the total cost and unit cost of each product.
2. A **cost accounting system** consists of accounts for the various manufacturing costs. These accounts are fully integrated into the general ledger of a company. An important feature of a cost accounting system is the use of a perpetual inventory system. Such a system provides immediate, up-to-date information on the cost of a product. The two basic types of cost accounting systems are (a) a process cost system and (b) a job order cost system.
3. A company uses a **process cost system** when it manufactures a large volume of similar products. Process costing accumulates product-related costs for a period of time instead of assigning costs to specific products or job orders.
4. Under a **job order cost system**, costs are assigned to each job or to each batch of goods. The objective is to compute the cost per job.

### Job Order Cost Flow

5. The **flow of costs** in job order cost accounting parallels the physical flow of the materials as they are converted into finished goods. There are two major steps in the flow of costs: (a) accumulating the manufacturing costs incurred, and (b) assigning the accumulated costs to the work done.
6. A company **accumulates manufacturing costs** incurred by debits to Raw Materials Inventory, Factory Labor, and Manufacturing Overhead. When the company incurs these costs, it does not attempt to associate the costs with specific jobs.
7. The **assignment of manufacturing costs** involves entries to Work in Process Inventory, Finished Goods Inventory, and Cost of Goods Sold.
8. The cost of raw materials purchased is debited to **Raw Materials Inventory** when materials are received.
9. Companies debit labor costs to **Factory Labor** as they are incurred. Factory labor consists of (1) gross earnings of factory workers, (2) employer payroll taxes on the earnings, and (3) fringe benefits incurred by the employer.
10. Manufacturing overhead costs are recorded as incurred and periodically through adjusting entries. The costs are debited to **Manufacturing Overhead**.

### Assigning Manufacturing Costs to Work in Process

11. (L.O. 2) The assignment of manufacturing overhead costs to work in process involves debits to Work in Process Inventory and credits to Raw Materials Inventory, Factory Labor, and Manufacturing Overhead.

12. A **job cost sheet** is a form used to record the costs chargeable to a specific job and to determine the total and unit costs of the completed job. A separate job cost sheet is kept for each job, typically as a computer file. A **subsidiary ledger** consists of individual records for each individual item (each job). The Work in Process account is referred to as a **control account** because it summarizes the detailed data regarding specific jobs contained in the job cost sheets. Each entry to Work in Process Inventory must be accompanied by a corresponding posting to one or more job cost sheets.
13. Companies assign raw materials costs to jobs when their materials storeroom issues the materials in response to requests. Work in Process Inventory is debited for direct materials used, Manufacturing Overhead is debited for indirect materials used, and Raw Materials Inventory is credited.
14. Companies assign factory labor costs to jobs on the basis of time tickets prepared when the work is performed. Work in Process Inventory is debited for direct labor costs, Manufacturing Overhead is debited for indirect labor costs, and Factory Labor is credited.

#### **Predetermined Overhead Rates**

15. (L.O. 3) Manufacturing overhead relates to production operations as a whole and cannot be assigned to specific jobs on the basis of actual costs incurred because these costs cannot be traced to specific jobs. Instead, manufacturing overhead is assigned to work in process and to specific jobs on an estimated basis through the use of a predetermined overhead rate.
16. The **predetermined overhead rate** is based on the relationship between estimated annual overhead costs and estimated annual operating activity. This relationship is expressed in terms of a common activity base such as direct labor costs, direct labor hours, or machine hours.
  - a. The formula for the predetermined overhead rate is:
 

Estimated Annual Overhead Costs	÷	Estimated Annual Operating Activity	=	Predetermined Overhead Rate
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  - b. The use of a predetermined overhead rate enables the company to determine the approximate total cost of each job when it completes the job.
  - c. Today, more companies are using **machine hours** as the activity base due to increased reliance on automation in manufacturing operations.
17. At the end of each month, the balance in Work in Process Inventory should equal the sum of the costs shown on the job cost sheets of unfinished jobs.

#### **Assigning Costs to Finished Goods**

18. (L.O. 4) When a job is completed, the total cost is debited to Finished Goods Inventory and credited to Work in Process Inventory. Finished Goods Inventory is a control account that controls individual finished goods records in a finished goods subsidiary ledger.
19. Companies recognize **cost of goods sold** when a sale occurs by a debit to Cost of Goods Sold and a credit to Finished Goods Inventory (the sale is recorded with a debit to Accounts Receivable or Cash and a credit to Sales Revenue).

### Job Order Costing for Service Companies

20. While service companies do not have inventory, the techniques of job order costing are still quite useful in many service industry environments. Many service organizations bill their customers using cost-plus contracts, which means that the customer's bill is the sum of the costs incurred on the job, plus a profit amount that is calculated as a percentage of the costs incurred.

### Advantages and Disadvantages of Job Order Costing

21. An advantage of job order costing is it is more precise in assignment of costs to projects than process costing. One disadvantage of job order costing is that it requires a significant amount of data entry.
22. (L.O. 5) At the end of a period, companies prepare financial statements that present aggregate data on all jobs manufactured and sold.
- a. The cost of goods manufactured schedule is the same as in Chapter 1 with one exception: In determining total manufacturing costs, **manufacturing overhead applied** is used instead of actual overhead costs.
  - b. Companies prepare the cost of goods manufactured schedule directly from the Work in Process Inventory account.

**Commented [AD1]:** Should this be moved under the "Under-or Overapplied" heading, per the marked up manuscript?

### Under- or Overapplied Manufacturing Overhead

23. Manufacturing overhead may be under- or overapplied. When Manufacturing Overhead has a **debit balance**, overhead is said to be underapplied. **Underapplied overhead** means that the overhead assigned to work in process is less than the overhead incurred. When manufacturing overhead has a credit balance, overhead is overapplied. **Overapplied overhead** means that the overhead assigned to work in process is greater than the overhead incurred.
24. At the **end of the year**, a company eliminates any balance in Manufacturing Overhead through an adjusting entry, usually to Cost of Goods Sold.
- a. Underapplied overhead is debited to Cost of Goods Sold.
  - b. Overapplied overhead is credited to Cost of Goods Sold.

## LECTURE OUTLINE

### A. Cost Accounting Systems.

1. Cost accounting involves the measuring, recording, and reporting of product costs. From the data accumulated, companies determine both the total cost and the unit cost of each product.
2. A cost accounting system consists of accounts for the various manufacturing costs. These accounts are fully integrated into the general ledger of a company. An important feature of a cost accounting system is the use of a perpetual inventory system that provides immediate, up-to-date information on the cost of a product.
3. There are two basic types of cost accounting systems:
  - a. A job order system, where the company assigns costs to each job or to each batch of goods, and
  - b. A process cost system, used when a company manufactures a large volume of similar products.

### **MANAGEMENT INSIGHT**

Many companies suffer from poor cost accounting and sometimes make products they should not be selling. The managers of a diversified company thought they were making money, but a consulting firm found that the company had seriously underestimated costs.

What type of costs do you think the company had been underestimating?

**Answer:** It is most likely that the company failed to estimate and track overhead. In a highly diversified company, overhead associated with the diesel locomotive jobs may have been “lost” in the total overhead pool for the entire company.

## **B. Job Order Cost Flow.**

1. The flow of costs (direct materials, direct labor, and manufacturing overhead) in job order cost accounting parallels the physical flow of the materials as they are converted into finished goods.
2. There are two major steps in the flow of costs:
  - a. Accumulating the manufacturing costs incurred; these costs are accumulated in three accounts: Raw Materials Inventory, Factory Labor, and Manufacturing Overhead, and
  - b. Assigning the accumulated costs to Work in Process Inventory and eventually to Finished Goods Inventory and Cost of Goods Sold.
3. Three entries are made to accumulate the manufacturing costs incurred.
  - a. When the company receives the raw materials it has purchased, it debits the cost of the materials to Raw Materials Inventory. Raw Materials Inventory is a control account. The subsidiary ledger consists of individual records for each item of raw materials.
  - b. The cost of factory labor consists of gross earnings of factory workers, employer payroll taxes, and fringe benefits (sick pay, pensions, and vacation pay) incurred by the employer. Companies debit labor costs to Factory Labor as they incur those costs. Factory labor is assigned to work in process and manufacturing overhead at the end of the period.
  - c. A company may record overhead costs periodically through adjusting entries by debiting Manufacturing Overhead. Manufacturing Overhead is a control account and the subsidiary ledger consists of individual accounts for each type of cost (factory utilities, factory repairs, etc.).

### **C. Assigning Manufacturing Costs to Work in Process.**

1. A job cost sheet is a form used to record the costs chargeable to a specific job and to determine the total and unit costs of the completed job. The job cost sheets constitute the subsidiary ledger for the Work in Process Inventory account.
2. Each entry to Work in Process Inventory must be accompanied by a corresponding posting to one or more job cost sheets.
3. Three entries are made in assigning the manufacturing costs to work in process.
  - a. Materials requisition slips indicate the quantity and type of materials withdrawn and the account to be charged. Companies charge direct materials to Work in Process Inventory and indirect materials to Manufacturing Overhead.
  - b. Companies assign factory labor costs to jobs on the basis of time tickets prepared when the work is performed. The time ticket indicates the hours worked, the account and job to be charged, and the total labor cost. Companies debit the Work in Process Inventory account for direct labor, and Manufacturing Overhead for indirect labor.
  - c. Companies assign manufacturing overhead to work in process and to specific jobs on an estimated basis through the use of a predetermined overhead rate. Using a predetermined overhead rate enables a cost to be determined for a job immediately.

## **MANAGEMENT INSIGHT**

Competitors often want to know the cost of a competing product. For a price, a company called IHS will tear apart sophisticated electronics and tell you what it would cost to replicate the product. The difference between the cost of the parts and the cost of the labor to assemble the parts isn't all profit. There are nonproduction costs such as research, design, marketing, patent fees, and selling costs.

What type of costs are research, design, marketing, patent fees, and selling costs, and how are they treated for accounting purposes?

**Answer:** Product costs include materials, labor, and overhead. Costs not related to production, such as research, design, marketing, patent fees, and selling costs, are period costs which are expensed in the period that they are incurred.

4. The predetermined overhead rate is based on the relationship between estimated annual overhead costs and estimated annual operating activity, expressed in terms of a common activity base.
  - a. The company may state the activity in terms of direct labor costs, direct labor hours, machine hours, or any other measure that will provide an equitable basis for applying overhead costs to jobs.
  - b. The predetermined overhead rate is established at the beginning of the year.
5. Using a predetermined overhead rate enables the company to determine the approximate total cost of each job when it completes the job.
6. At the end of each month, the balance in Work in Process Inventory should equal the sum of the costs shown on the job cost sheets of unfinished jobs.



#### **D. Assigning Costs to Finished Goods and Cost of Goods Sold.**

1. When a job is completed, the company summarizes the costs in the applicable job cost sheet and debits Finished Goods Inventory. Finished Goods Inventory is a control account that controls individual finished goods records in a finished goods subsidiary ledger. Postings to the finished goods records are made directly from completed job cost sheets.
2. Companies recognize cost of goods sold when each sale occurs. Each sale requires an entry debiting Cash or Accounts Receivable and crediting Sales Revenue for the selling price and a second entry debiting Cost of Goods Sold and crediting Finished Goods Inventory for the cost of the goods.
3. Job cost sheets for a service company keep track of materials, labor, and overhead used on a particular job similar to a manufacturer.

#### **SERVICE COMPANY INSIGHT**

Jet engines are one of the many products made by the industrial operations division of General Electric. At prices as high as \$30 million per engine GE does its best to keep track of costs. Because of the high product costs, both the engines themselves and the subsequent service are most likely accounted for using job order costing. GE needs good cost records for its service jobs in order to control its costs.

Explain why GE would use job order costing to keep track of the cost of repairing a malfunctioning engine for a major airline.

**Answer:** GE operates in competitive environment. Other companies offer competing bids to win service contracts on GE airplane engines. GE needs to know what it costs to repair engines, so that it can present competitive bids while still generating a reasonable profit.

#### **E. Applied Manufacturing Overhead.**

1. At the end of a period, companies prepare financial statements that present data on all jobs manufactured and sold.
2. The cost of goods manufactured schedule in Job order costing is the same as in Chapter 1 with one exception: manufacturing overhead applied, rather than actual overhead costs, is added to direct materials and direct labor to determine total manufacturing costs.

#### **F. Under- or Overapplied Manufacturing Overhead.**

1. Underapplied overhead means that the overhead assigned to work in process is less than the overhead incurred (when Manufacturing Overhead has a debit balance).
2. Overapplied overhead means that the overhead assigned to work in process is greater than the overhead incurred (when Manufacturing Overhead has a credit balance).
3. At the end of the year, the company eliminates any balance in Manufacturing Overhead by an adjusting entry. Under- or overapplied overhead is generally considered to be an adjustment to cost of goods sold.
4. The company debits underapplied overhead to Cost of Goods Sold and it credits overapplied overhead to Cost of Goods Sold.

## 20 MINUTE QUIZ

Circle the correct answer.

### True/False

1. Under a job order system, the company assigns costs to each job, or each batch of goods, to fill a specific customer order or replenish inventory.  
True      False
2. Manufacturing costs incurred in a job order system are accumulated by debits to Purchases, Factory Labor, and Manufacturing Overhead.  
True      False
3. Each debit to Work in Process Inventory must be accompanied by a corresponding posting to one or more job cost sheets.  
True      False
4. Manufacturing overhead costs **cannot** be traced directly to a specific job.  
True      False
5. The requisition of factory supplies to production requires a debit to the Manufacturing Overhead account.  
True      False
6. Actual overhead costs are debited to the Manufacturing Overhead account.  
True      False
7. The entry to record the cost of goods sold includes a debit to Finished Goods Inventory.  
True      False
8. A debit balance in the Manufacturing Overhead Account at the end of the period indicates that overhead has been overapplied.  
True      False
9. In preparing the costs of goods manufactured schedule in job order costing, manufacturing costs include direct materials used, direct labor used, and manufacturing overhead applied.  
True      False
10. A job cost sheet is a form used to record the costs chargeable to a specific job and to determine the total and unit cost of the completed job.  
True      False

### Multiple Choice

1. A job order cost sheet includes
  - a. the selling price of the job.
  - b. a total when a job is completed and transferred to cost of goods sold.
  - c. all manufacturing costs for a job.
  - d. all manufacturing overhead costs for the period.
2. Companies assign raw materials costs to jobs
  - a. By debiting Raw Materials Inventory and crediting Work in Process.
  - b. Based on a predetermined rate.
  - c. In response to verbal requests for indirect materials such as supplies.
  - d. Using any of the inventory costing methods (FIFO, LIFO, or average-cost).
3. In a job order cost system, debits to Work in Process Inventory originate from all of the following **except**
  - a. applying the predetermined overhead rate.
  - b. assigning direct labor from time tickets.
  - c. assigning actual manufacturing overhead costs to jobs.
  - d. assigning direct materials from requisition slips.
4. The predetermined overhead rate is computed by dividing estimated
  - a. level of activity by estimated overhead costs.
  - b. level of activity by estimated overhead costs.
  - c. overhead costs by estimated cost of jobs.
  - d. overhead costs by estimated activity base.
5. If annual overhead costs are expected to be \$1,000,000 and 200,000 total labor hours are anticipated (80% direct, 20% indirect), the overhead rate based on direct labor hours is
  - a. \$6.25.
  - b. \$5.00.
  - c. \$25.00.
  - d. \$4.00.

## ANSWERS TO QUIZ

### True/False

- |          |          |
|----------|----------|
| 1. True  | 6. True  |
| 2. False | 7. False |
| 3. True  | 8. False |
| 4. True  | 9. True  |
| 5. True  | 10. True |

### Multiple Choice

1. c.
2. d.
3. c.
4. d.
5. a