**Chapter 3 (Product Costing) Video**

Chapters 3 and 4 cover the traditional product and service costing methods

**CHAPTER 3**

**COSTING METHODS**

**Job-order costing (Chapter 3)**

* Distinct production jobs that are significantly different.
* Usually job-order or batch production
* Costs are accumulated by job or batch
  + **Project costing** *refers to job costing in a nonmanufacturing environment*. "Jobs" in this case refer to cases, contracts, and/or programs.

**Process costing (Chapter 4)**

* Used by firms with large numbers of identical units
* Usually continuous production
* Costs are accumulated by department

Job Order and Process costing methods have been used for a long time, and they are well-established in companies.

In Chapter 5, we will introduce a third method, **Activity Based Costing (ABC).**

Chapters 3 and 4 introduce many of the basic concepts and vocabulary of cost accounting.

**INVENTORIES**

For manufacturing firms, the following are costs are accumulated:

* Work-in-process inventory
* Finished-goods inventory
* Cost of goods sold

**OVERHEAD**

**Overhead Application**

* Generally, overhead is allocated to products during a period using a **predetermined overhead rate** (***budgeted overhead / budgeted activity***)
* This process is called **normal costing** in the chapter

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| |  |  |  | | --- | --- | --- | | **Predetermined manufacturing overhead rate per unit of activity** | = | Budgeted (estimated, predicted) total manufacturing overhead cost for the year | |  |  | Budgeted (predicted) units of activity (1) | | 1. E.G., direct labor hours, machine hours | | | |

* A **single overhead rate** is commonly known as a **plantwide rate;**
* In an environment with multiple departments, multiple rates are often known as **departmental rates.**
* **Overhead is applied using some type of cost driver** (discussed in much more depth in Chapter 5)
  + *Direct labor* has been a very common and appropriate cost driver. Past processes were labor intensive, and products incurring more labor often produced higher amounts of manufacturing overhead.
  + Today, many processes are automated and less dependent on labor. Thus, firms now use **machine hours**, **process time**, **throughput (cycle) time** (the average amount of time to convert raw materials into finished goods), and **other measures** as cost drivers.
  + **Overhead may be allocated in a two-stage cost allocation process when multiple departments and multiple service departments are used** (discussed in much more depth in Chapter 5)
* *Stage one:* Overhead is first accumulated in production departments. This frequently requires the allocation of **service department costs** to production departments.
* *Stage two:* As a final step, production department costs are assigned to individual jobs and products via overhead application.

**Incurrence of actual overhead**

* Overhead costs are recorded during the period as incurred and charged to a manufacturing overhead account

**End of Period Adjustment: Applied overhead versus actual overhead**

* Adjusting the over- or underapplied overhead at the end of the accounting period

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| **Manufacturing Overhead** | |
| Debited for actual overhead costs incurred | Credited for overhead applied, using *predetermined overhead rate* |
|  |  |
| (1) Ending balance | (2) Ending balance |

1. If actual overhead is greater than the amount applied, then the overhead is **under-applied**
2. If actual overhead is less than the amount applied, then the overhead is **over-applied.**

**One can think of the computation of over or under applied overhead as either actual – applied or applied – actual.**

**Over (under) applied overhead** = overhead applied during the period - end of period actual manufacturing overhead.

**At period-end, the amount of over (under) applied is zeroed out and allocated (prorated) among**

* Work in process inventory
* Finished goods inventory
* Cost of goods sold

*For expediency, companies (and text problems) frequently charge the entire amount of over (under) applied overhead to cost of goods sold.*

*NOTE:*  under- and overapplied overhead is the *difference between actual and applied overhead*, not actual and budgeted overhead. The budgeted figure is used solely in the determination of the predetermined rate.

**Vocabulary**

* **Estimated = budgeted**
* **Applied = allocated**
* **Incurred = actual**

**Example:**

At the beginning of year, the Martin Co. budget process resulted on the following information.

Budgeted Overhead: $30,000,000

Budgeted Direct Labor Hours: 1,000,000

Budgeted Machine Hours: 3,000,000

1. What is the predetermined overhead rate if direct labor hours is used as the cost driver?
2. What is the predetermined overhead rate if machine hours is used as the cost driver?

The following actual information is available at year-end.

Actual Overhead for the year is $30,800,000

Actual direct labor hours = 950,000

Actual machine hours = 3,100,000

1. If direct labor hours is used as the cost driver, how much overhead is applied during the period, and how much at year–end is over (under) applied?
2. If machine hours is used as the cost driver, how much overhead is applied during the period, and how much at year-end is over (under) applied?

**Answer**

Budgeted Overhead: $30,000,000

Budgeted Direct Labor Hours: 1,000,000

Budgeted Machine Hours: 3,000,000

1. What is the predetermined overhead rate if direct labor hours is used as the cost driver? $***30,000,000 / 1,000,000 = $30 per direct labor hour***
2. What is the predetermined overhead rate if machine hours is used as the cost driver? $***30,000,000 / 3,000,000 = $10 per machine hour***

The following actual information is available at year-end.

Actual Overhead for the year is $30,800,000

Actual direct labor hours = 950,000

Actual machine hours = 3,100,000

1. If direct labor hours is used as the cost driver, how much overhead is applied during the period, and how much at year–end is over (under) applied?

***Applied. 950,000 actual direct labor hours x $30 per direct labor hour = $28,500,000 applied***

***Over (under) applied. $28,500,000 applied – $30,800,000 actual = ($2,300,000) under applied***

1. If machine hours is used as the cost driver, how much overhead is applied during the period, and how much at year-end is over (under) applied?

***Applied. 3,100,000 actual machine hours x $10 per machine hour = $31,000,000 applied***

***Over (under) applied. $31,000,000 applied – $30,800,000 actual = $200,000 over applied***