

Lectures Note

# COST ACCOUNTING

Chapter 8: Process Costing – Weighted Average and FIFO Costing

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## Chapter VIII

# Process Costing – Weighted Average and FIFO Costing

*After studying this chapter, you should be able to:*

- 1. Know the difference between process costing and job order companies*
- 2. Determine the method of process costing systems*
- 3. Explain the step to make production report*
- 4. Prepare cost of production report of each method*
- 5. Journalize the transactions needed*

Study objectives of this chapter will give you the explanation of the step to prepare cost of production report for process costing method

### Characteristic of Process Costing

1. Production costs are accumulated periodically (monthly, annually, etc)
2. Products produced are homogeneous
3. Products are produced through continuous production process
4. A cost of production report is used to collect, summarize and compute total and unit costs
5. Cost are charged to departmental work in process accounts
6. Production is accumulated and reported by departments
7. Production in process at the end of period is restated in terms of completed units
8. Total cost charged to a department is divided by total computed production of the department to determine an average cost for a specific period
9. A cost for lost or spoiled unit is computed and added to the cost of satisfactory units completed

10. Costs of completed units of a department are transferred to the next processing department in order to arrive eventually at the total costs of finished products during the period.

### The Procedures of Process Costing are Designed to:

1. Accumulated materials, labor, and factory over head costs
2. Determine a unit cost for each department
3. Transfer costs from department to the next departments and to finished goods
4. Assign costs to the inventory of work still in process.

### The Treatment of Beginning Work in Process Inventory

#### **1. Weighted Average Cost Method**

- a. Each element of beginning work in process costs is combined to the current manufacturing costs
- b. Equivalent unit (EU)

$$\text{EU} = \text{Unit Completed} + (\text{Ending Work in Process Inventory} \times \% \text{ Stage of Completion})$$

- c. Cost per unit for each element of manufacturing costs

$$\text{Cost per unit for each element of manufacturing costs} = \text{Total Costs} / \text{EU}$$

#### **2. First In First Out / FIFO Method**

- a. It is assumed that Beginning WIP Inventory is process first, and then units put in process from the current period.
- b. Each element of beginning work in process costs is separated to the current manufacturing costs

- c. Equivalent unit (EU)

$$\text{EU} = \text{Unit Completed} + (\text{Ending Work in Process Inventory} \times \% \text{ Stage of Completion}) - (\text{Beginning Work in Process Inventory} \times \% \text{ Stage of Completion})$$

Or

$$\text{EU} = (\text{Beginning Work in Process Inventory} \times \% \text{ Stage of Completion Less}) \text{ Unit Completed from Current Period} + (\text{Ending Work in Process Inventory} \times \% \text{ Stage of Completion})$$

- d. Cost per unit for each element of manufacturing costs

$$\text{Cost per unit for each element of manufacturing costs} = \text{Total Costs} / \text{EU}$$

- e. The computation of costs of unit completed from current period and costs of unit completed from beginning WIP is not combined.

## Cost of Production Report

A cost of production report summarizes total and unit costs. Four steps of preparing costs of production report are as follows:

1. Prepare Quantity Schedule
2. Calculate Equivalent Units and Unit Cost
3. Determine the Cost to Account for
4. Distribute all cost and Account for All Cost.

## Illustration – Single Department

Abimayu Corporation manufactures its products using the process costing. Work in process on January 1, 2014 is 1,000 units (100% RM, 60% CC) and on January 31, 2014, is 3,000 units (100% RM, 50% CC). Beginning WIP Inventory has costs of \$ 90,000 (RM \$40,000 and CC \$50,000). Current manufacturing costs consist of RM \$500,000 and CC \$400,000. Units put in process for current period are 5,000 units.

Required:

- a. Prepare costs of production report for January 2014 using Weighted Average Method and FIFO Method
- b. The entries needed

The calculations of these illustrations are shown on the next pages. And for the journal entries are shown as follows:

*(1) To record the manufacturing costs*

Raw Material Inventory	\$500,000	
Conversion Costs	400,000	
Account Payable		\$500,000
Any Credit Accounts		400,000

*(2) To apply manufacturing costs to products*

WIP Inventory	900,000	
Raw Material Inventory		500,000
Conversion Costs		400,000

*(3) To record the finished goods*

Finished Good Inventory	570,000*	
WIP Inventory		570,000

\*) amount of weighted average method in Step 4

**Abimayu Corporation**  
**Cost of Production Report – Average Method**  
**January 2024**

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**Quantity Schedule (Step 1)**

Beginning WIP (100% RM, 60% CC)	1,000	
Units started in process	<u>5,000</u>	<u>6,000</u>
Units completed	3,000 <sup>1)</sup>	
Ending WIP (100% RM, 50% CC)	<u>3,000</u>	<u>6,000</u>

**Equivalent Unit (Step 2)**

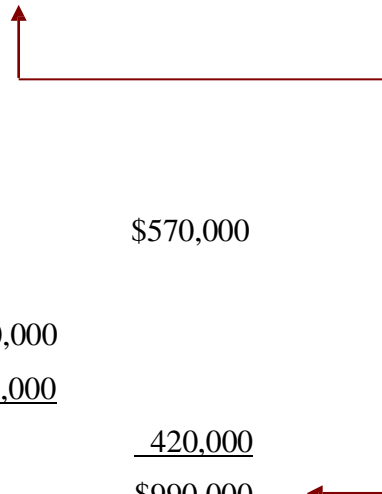
EU RM = 3,000 + 3,000 (100%)	= 6,000
EU CC = 3,000 + 3,000 (50%)	= 4,500

**Cost to Account for (Step 3)**

	WIP Costs	Current	Total	EU	Cost/unit
RM	\$40,000	\$500,000	\$540,000	6,000	\$ 90
CC	<u>\$50,000</u>	<u>\$400,000</u>	<u>\$450,000</u>	4,500	<u>100</u>
Total	<u>\$90,000</u>	<u>\$900,000</u>	<u>\$990,000</u>		<u>\$190</u>

**Cost Accounted for (Step 4)**

Costs of units completed 3,000 x \$190	\$570,000
Costs of ending WIP (3,000 units)	
RM 3,000 (100%) x \$90	\$270,000
CC 3,000 (50%) x \$100	<u>150,000</u>
	<u>420,000</u>
Total costs accounted for	<u>\$990,000</u>





**Abimayu Corporation**  
**Cost of Production Report – FIFO Method**  
**January 2024**

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**Quantity Schedule (Step 1)**

Beginning WIP (100% RM, 60% CC)	1,000	
Units started in process	<u>5,000</u>	<u>6,000</u>
Units completed	3,000 <sup>1)</sup>	
Ending WIP (100% RM, 50% CC)	<u>3,000</u>	<u>6,000</u>

**Equivalent Unit (Step 2)**

EU RM = 3,000 + 3,000 (100%) – 1,000 (100%)	= 5,000
EU CC = 3,000 + 3,000 (50%) – 1,000 (60%)	= 3,900

**Cost to Account for (Step 3)**

Beginning WIP Costs			
RM	\$40,000		
CC	<u>\$50,000</u>		
Total	\$90,000		
Current Manufacturing Cost		EU	Cost/unit
RM	\$500,000	5,000	\$100.0000
CC	<u>\$400,000</u>	3,900	<u>102.5641</u>
Total costs	<u>\$990,000</u>		<u>\$202.5641</u>

**Cost Accounted for (Step 4)**

Costs of units completed			
From Beginning WIP			
- Cost of beginning WIP		\$90,000.00	
- Additional cost CC 1,000 (40%) x \$102,5461		41,018.44	
From current period 2,000 x \$202.5641		<u>405,128.20</u>	
Costs of units completed 3,000 units @ 178.71			\$536,146.64
Costs of ending WIP (3,000 units)			
RM 3,000 (100%) x \$100.0000	\$300,000.00		
CC 3,000 (50%) x \$102.5641	<u>153,846.15</u>		
			<u>453,846.15</u>
Total costs accounted for			<u>\$990,000.00*</u>

\*) Rounded 7.21

(4) *To apply manufacturing costs to products*

WIP Inventory	900,000	
Raw Material Inventory		500,000
Conversion Costs		400,000

(5) *To record the finished goods*

Finished Good Inventory	570,000*	
WIP Inventory		570,000

\*) amount of weighted average method in Step 4

### Subsequent Month and Department

Ending work in process inventory for this month will be beginning work in process inventory for next month. If products are manufactured through two department, units completed in Department I will be transferred to Department II. They become *units started in process* in Department II. Cost transferred to Department II will be *costs received from Dept I* to Dept II.

### Homework – Individual Assignment

Data obtained from Tulip Company for November 2023 are as follows:

Units in beginning inventory (100% RM, 75% L, 60% OH)	800
Units started in process this period	3,200
Units completed and transferred to warehouse	3,400
Units in ending inventory (75% RM, 40% L, 25% OH)	.....



	<u>Beginning Inventory</u>	<u>Added This Period</u>
Costs charged to the department:		
Materials	\$18,000	\$70,000
Direct Labor	2,500	15,000
Factory Overhead	7,500	30,000

Required:

Prepare a November cost of production report using Weighted Average and FIFO Method, then journalize the entries needed!

## REFERENCES

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- Miller, J. 1996. Implementing Activity-Based Management. New York: John Wiley and Sons.
- Rayburn, L Gayle. 2016. Cost Accounting: Using a Cost Management Approach 12<sup>th</sup> edition. England: Richard D. Irwin, Inc.