Process Costing

LO 1: Review Job-Order Costing and Process Costing

Job-Order Costing	Process Costing
Used for custom or unique items Each job is accounted for separately Measures cost based on completed job Examples: Movie, Plane, Custom house	Used for large volumes of similar products Production is continuous Measures costs based on a period of time Examples: cereal, chips, paper towels,

Cost Flow

Job-Order:

Direct Materials Direct Labor Manufacturing Overhead →	Work in Process Inventory →	Finished Goods Inventory →	Cost of Goods Sold

Process:

Direct Materials Direct Labor Manufacturing Overhead →	Work in Process Inventory- Dept. A →	Work in Process Inventory- Dept. B →	Finished Goods Inventory →	Cost of Goods Sold

Differences

	Job- Order	Process
Work in Process	Only 1 work in process account	Multiple work in process accounts by department
Documents Used	Job cost sheets	Production cost reports
Determining Total Manufacturing Cost	Each job	Each period
Unit- Cost	Cost of job/Units produced per job	Total manufacturing costs/Equivalent units produced during the period

LO 2: Journal Entries

Accumulating Entries are the same as Job-Order Costing

The journal entries to record the costs <u>incurred</u> are as follows:

<u>1)Purchase of raw materials</u>

Raw material inventory	xxx	
Accounts payable		xxx

2)Factory labor costs

Factory Labor	xxx	
Factory Wages Payable		xxx
Employer Payroll Taxes Payable		xxx

3)Manufacturing overhead costs

Manufacturing Overhead	xxx	
Various Payable		xxx
Accumulated Depreciation		xxx

The journal entries to record the costs assigned to Work in Process are as follows:

Note: Process Costing assigns cost by Department

4)Issue raw materials

Work-in-process- Department A	xxx	
Work-in-process- Department B	xxx	
Raw materials inventory		xxx

5)Labor costs assigned

Work-in-process- Department A	xxx	
Work-in-process- Department B	xxx	
Factory Labor		xxx

Assign Manufacturing Overhead using a Predetermined Overhead Rate

Manufacturing overhead relates to productions as a whole, and cannot be assigned to specific jobs based on costs incurred. Therefore, it is assigned to each job on an estimated basis using:

Predetermined Overhead Rate=
Estimated Annual Overhead Costs / Estimated Annual Cost Driver
(in process costing, machine hours is the typical cost driver)

Manufacturing overhead assigned=
Actual Activity Base Used * Predetermined Overhead Rate

6)Manufacturing overhead assigned

Work-in-process inventory –Department A	xxx	
Work-in-process inventory –Department B	xxx	

Manufacturing overhead		xxx

Transfer to Next Department

7)Transfer from Department A to Department B		
Work-in-process inventory –Department B	xxx	
Work-in-process inventory – Department A		xxx

(Remember Work-in-Process is an asset account. It will increase with a debit and decrease with a credit)

Transfer Costs to Finished Goods

When a job is completed, increase finished goods account, and decrease work in process

8)Assign costs to finished goods		
Finished Goods	xxx	
Work in Process inventory-Department B		xxx

Transfer Finished Goods to Cost of Goods Sold

When a sale occurs, increase cost of goods sold, and decrease finished goods

9)Assign costs to cost of goods sold		
Accounts Receivable	xxx	
Sales Revenue		xxx
Cost of Goods Sold	xxx	
Finished Goods		xxx

Practice #1

M Company produces house paint in two processing departments: the Mixing Department that mixes the paint colors and the Finishing Department that puts the paint in containers and labels them. The following information related to the company's operation for October follows:

a) Raw materials were issued for use in production: Mixing department, $638,750, and the Finishing department, $629,000.
b) Direct labor costs incurred: Mixing department $270,000, and Finishing department $230,000.
c) Manufacturing overhead cost applied: Mixing department $665,000, and Finishing department, $405,000.
d) The cost of the mixed paint transferred from the Mixing department to the Finishing department has yet to be determined. All mixed paint was transferred to the Finishing Department.
e) Paint that had been prepared for shipping was transferred from the Finishing department to Finished Goods. Cost of the transferred paint was $3,200,000.

Required: Prepare journal entries to record items a) through e) above

LO 3: Equivalent Units

Terms
Equivalent Units of Production
Conversion Costs

Units Completed and Transferred Out	+	Equivalent Units of Ending Work in Process	=	Equivalent Units of Production

Weighted Average Costing Method

- In computing equivalent units, the beginning work in process is not part of the equivalent units of production formula.
- An equivalent unit of production is determined for both the materials and conversions costs

Compute Equivalent Units:

	Materials	Conversion Costs
Units completed and transferred out	Units completed and transferred are whole units, and entire amount should be used. Material and Conversion amounts should be the same.	Units completed and transferred are whole units, and entire amount should be used. Material and Conversion amounts should be the same.
Work in Process- Ending Inventory	Units in Ending inventory multiplied by percentage complete in **Materials**	Units in Ending inventory multiplied by percentage complete in **Conversion**
Total Equivalent Units	Add above two boxes to get Total Equivalent Units for Materials	Add above two boxes to get Total Equivalent Units for Conversion

Practice #2

M Company uses a processing costing system. The following data are available for the mixing department for October. The department started 175,000 gallons into production during the month.

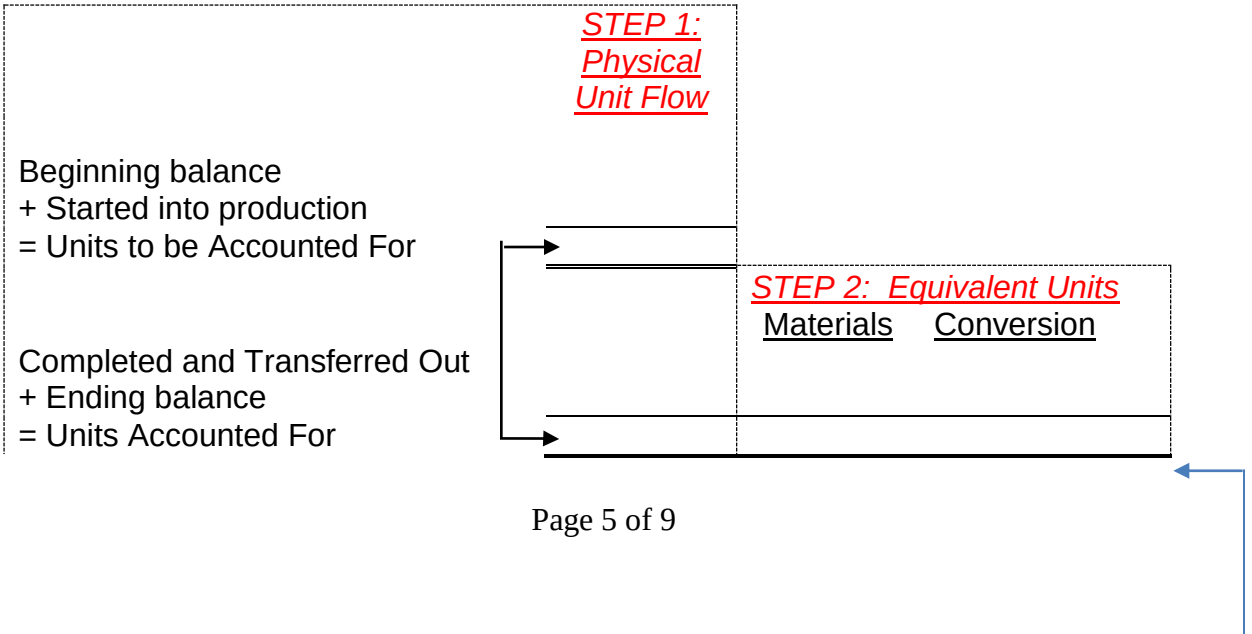
		Percent Complete	
	Gallons	Materials	Conversion Costs
Work-in-process, October 1	30,000	65%	30%
Work-in-process, October 31	15,000	80%	40%

Required: Determine the equivalent units of production for the month.

LO 4: Production Cost Report

Terms
Production Cost Report
Unit Production Cost

- Step 1: **Compute the physical unit flow** showing actual units to be accounted for during the period. The beginning inventory of Work in Process + units started into production = units completed and transferred out + ending inventory of Work in Process
- Step 2: **Calculate equivalent units** by combining the completed and transferred units with the equivalent units from the ending work-in-process inventory for both the Materials Cost and the Conversion Cost.
- Step 3: **Compute Unit Production Costs**. A cost per unit will need to be completed for materials, conversion, and total manufacturing costs. To compute unit production cost:
  - Total Material Cost / Equivalent Units of Materials= Unit Material Cost
  - Total Conversion Cost/Equivalent Units of Conversion= Unit Conversion Cost
  - Unit Material Cost + Unit Conversion Cost= Total Manufacturing Cost per Unit
- Step 4: **Prepare a Cost Reconciliation Schedule** that assigns costs to units transferred out and ending work in process and makes sure it agrees with the costs to be accounted for from the beginning work in process plus costs that were started into production.



Equivalent Units		X	Y

STEP 3: Unit Production Cost

	Materials	Conversion
Work in Process Beginning Inventory Cost	A	C
+ Costs Added Into Production	B	D
= Total Cost	(A+B)	(C+D)
Divided by Equivalent Unit Computed in Step 2	X	Y
Unit Cost	(A+B)/X	(C+D)/Y

Unit Material Cost + Unit Conversion Cost = Total Manufacturing Cost per Unit

STEP 4: Cost Reconciliation Schedule

Costs charged to each department are compared to the allocation of costs assigned to completed and transferred out and ending inventory work-in-process.

Costs Assigned to Department

Cost to be accounted for		
Cost of Beginning Inventory Work in Process		XXX
Plus costs associated with units started into production		XXX
Total Costs		XXXX

Costs Assigned to Units Transferred and Ending Inventory

Cost to be accounted for		
Transferred Out		(whole units * manufacturing cost per unit)
Ending Inventory		
Materials		(Material Equivalent Units * Material Cost per Equivalent Unit)
Conversion		(Conversion Equivalent Units * Conversion Cost per Equivalent Unit)
Total Costs		Add all above amounts together and agree to Total Costs from above

Practice #3

S Company uses a process cost system. The Molding Department adds materials at the beginning of the process and therefore are 100% complete at the beginning of the process. Conversion cost on May 1 were 75% complete and work in process on May 31 was 25% complete.

	Physical Units	Total Costs	Materials	Conversion
Beginning balance	16,000	$83,000	$41,000	$42,000
Started into production	50,000	$250,150	157,000	93,150
Ending Inventory	20,000			
Total Costs				

Required: Complete the production report for the Molding Department for May by completing Steps 1, 2, 3, and 4.

Solution #1

a)	Work in Process – Mixing	638,750	
	Work in Process – Finishing	629,000	
	Raw Materials		1,267,750
b)	Work in Process – Mixing	270,000	
	Work in Process – Finishing	230,000	
	Factory Labor		500,000
c)	Work in Process – Mixing	665,000	
	Work in Process – Finishing	405,000	
	Manufacturing Overhead		1,070,000
d)	Work in Process – Finishing	1,573,750	
	Work in Process – Mixing		1,573,750
e)	Finished Goods	3,200,000	
	Work in Process – Finishing		3,200,000

Solution #2

		Equivalent Units	
	Gallons	Materials	Conversion Cost
Work-in-process, October 1	30,000		
Started into production	175,000		
Units to be Accounted For	205,000		
Completed and Transferred	190,000*	190,000 (whole units)	190,000 (whole units)
Work-in-process, October 31	15,000	12,000 (15,000*80%)	6,000 (15,000*40%)
Units Accounted For	205,000		
Equivalent Units		202,000	196,000

Units to be accounted for is 205,000 – ending work-in-process 15,000= 190,000 completed and transferred.

Solution #3

	Physical Units		
Beginning balance	16,000		
+ Started into production	50,000		
= Units to be Accounted For	66,000		
		Materials	Conversion
Completed and Transferred Out	46,000	46,000	46,000
+ Ending balance	20,000	20,000	5,000 (20,000*20%)
= Units Accounted For	66,000		
Equivalent Units		66,000	51,000
	Total		
Beginning balance	$83,000	$41,000	$42,000
+ Costs added during the period	250,150	157,000	93,150
= Costs to be Accounted For	$333,150	$198,000	$135,150
Total costs		$198,000	$135,150
Divided by Equivalent Units=		0	51,000 =

Cost per Equivalent units		66,000 = $3.00	$2.65
Cost Reconciliation Schedule			
Costs to be accounted for			
Transferred out (46,000* (3.00+2.65))			$259,900
Work in Process			
Material (20,000*3)	60,000		
Conversion (5,000*2.65)	13,250		73,250
Total Costs			$333,150