Solutions for Managerial Accounting Tools for Business Decision Making 8th Edition by Weygandt

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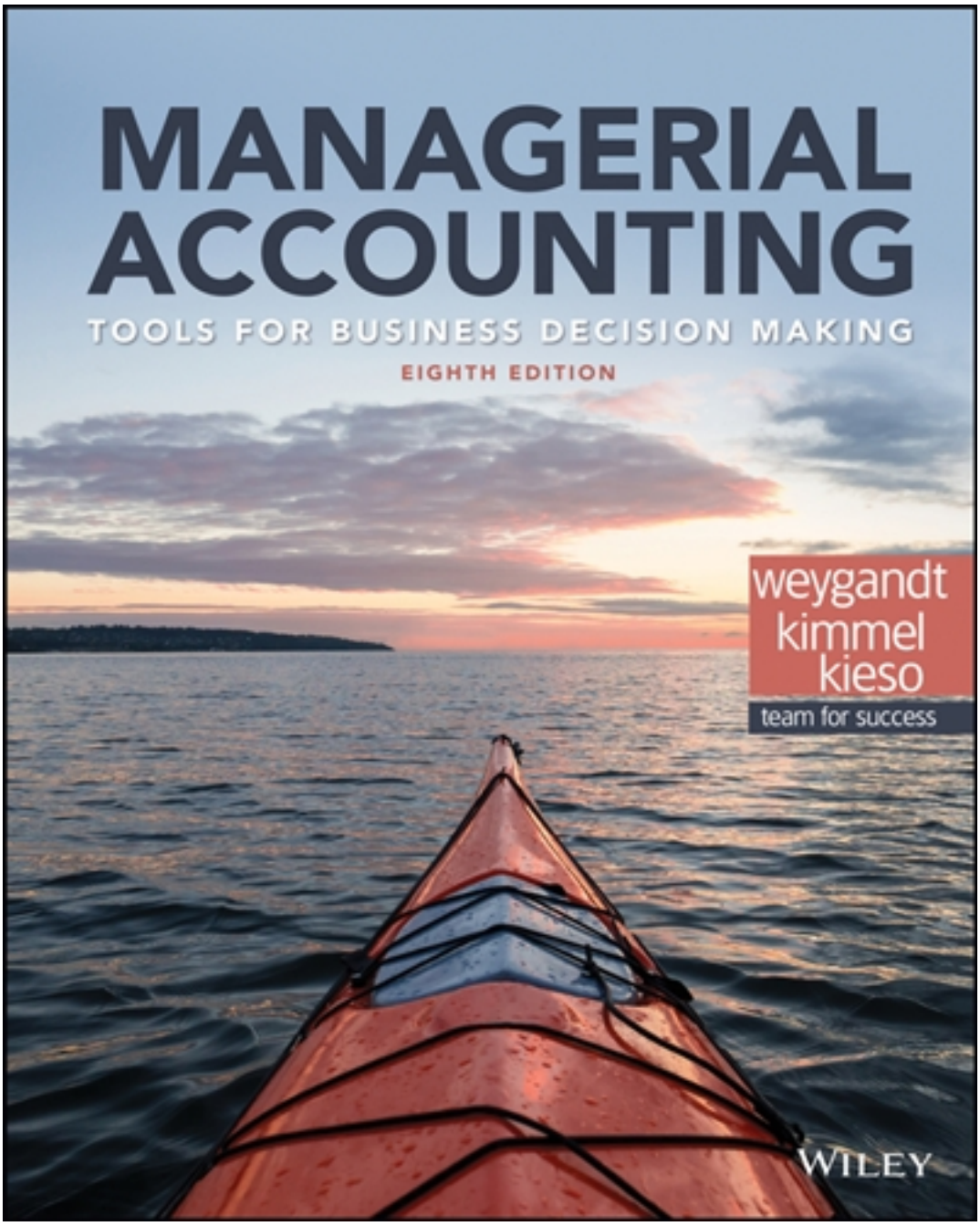


Solutions

CHAPTER 2

Job Order Costing

ASSIGNMENT CLASSIFICATION TABLE

Learning Objectives		Questions	Brief Exercises	Do It!	Exercises	A Problems
1.	Describe cost systems and the flow of costs in a job order system.	1, 2, 3, 4, 5, 6, 7, 8	1, 2	1	1, 2, 3, 4, 6, 7, 8, 9, 11	1A, 2A, 3A, 5A
2.	Use a job cost sheet to assign costs to work in process.	9, 10, 11, 12, 15	3, 4, 5	2	1, 2, 3, 6, 7, 8, 10, 12	1A, 2A, 3A, 5A
3.	Demonstrate how to determine and use the predetermined overhead rate.	13, 14	6, 7	3	2, 3, 5, 6, 7, 8, 11, 12, 13	1A, 2A, 3A, 4A, 5A
4.	Prepare entries for manufacturing and service jobs completed and sold.	16	8, 9	4	2, 3, 6, 7, 8, 10, 11, 12	1A, 2A, 3A, 5A
5.	Distinguish between under- and overapplied manufacturing overhead.	17, 18	10	5	4, 5, 9, 13	1A, 2A, 3A, 4A, 5A

ASSIGNMENT CHARACTERISTICS TABLE

Problem Number	Description	Difficulty Level	Time Allotted (min.)
1A	Prepare entries in a job order cost system and job cost sheets.	Simple	30–40
2A	Prepare entries in a job order cost system and partial income statement.	Moderate	30–40
3A	Prepare entries in a job order cost system and cost of goods manufactured schedule.	Simple	30–40
4A	Compute predetermined overhead rates, apply overhead, and calculate under- or overapplied overhead.	Simple	20–30
5A	Analyze manufacturing accounts and determine missing amounts.	Complex	30–40

Correlation Chart between Bloom's Taxonomy, Learning Objectives and End-of-Chapter Exercises and Problems

Learning Objective	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
1. Describe cost systems and the flow of costs in a job order system.	Q2-5 Q2-7 Q2-8	Q2-1Q2-4 Q2-2Q2-6 Q2-3BE2-1	BE2-2 E2-6 P2-1A DI2-1 E2-7 P2-2A E2-1 E2-8 P2-3A E2-2 E2-9 E2-3 E2-11	E2-4 P2-5A		
2. Use a job cost sheet to assign costs to work in process.	Q2-11 Q2-12	Q2-9 Q2-10	BE2-3 E2-2 E2-10 BE2-4 E2-3 E2-12 BE2-5 E2-6 P2-1A DI2-2 E2-7 P2-2A E2-1 E2-8 P2-3A	P2-5A		
3. Demonstrate how to determine and use the predetermined overhead rate.	Q2-15	Q2-13 Q2-14	BE2-6 E2-6 P2-1A BE2-7 E2-7 P2-2A DI2-3 E2-8 P2-3A E2-2 E2-11 P2-4A E2-3 E2-12 E2-5 E2-13	P2-5A		
4. Prepare entries for manufacturing and service jobs completed and sold.		Q2-16	BE2-8 E2-6 E2-11 BE2-9 E2-7 E2-12 DI2-4 E2-8 P2-1A E2-2 E2-10 P2-2A E2-3 P2-3A	P2-5A		
5. Distinguish between under- and overapplied manufacturing overhead.		Q2-17 Q2-18	DI2-5 E2-13 P2-3A E2-9 P2-1A P2-4A BE2-10 P2-2A E2-5	P2-5A E2-4		
Continuing Problems		CD2 WP2				
Expand Your Critical Thinking		CT2-3 CT2-4	CD-2	CT2-2		CT2-1 CT2-5 CT2-6 CT2-7

ANSWERS TO QUESTIONS

1. (a) Cost accounting involves the measuring, recording, and reporting of product costs. A cost accounting system consists of manufacturing cost accounts that are fully integrated into the general ledger of a company.

(b) 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.

LO1 BT: C Difficulty: Easy TOT: 4 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

2. (a) The two principal types of cost accounting systems are: (1) job order cost system and (2) process cost system. Under a job order cost system, costs are assigned to each job or batch of goods; at all times each job or batch of goods can be separately identified. A job order cost system measures costs for each completed job, rather than for set time periods. Under a process cost system, product-related costs are accumulated by or assigned to departments or processes for a set period of time. Job order costing lends itself to specific, special-order manufacturing or servicing while process costing is better suited to similar, large-volume products and continuous process manufacturing.

(b) A company can use both types of systems. For example, General Motors uses process costing for standard model cars and job order costing for custom-made vehicles.

LO1 BT: C Difficulty: Easy TOT: 5 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

3. A job order cost system is most likely to be used by a company that receives special orders, or custom builds, or produces heterogeneous items or products; that is, the product manufactured or the service rendered is tailored to the customer or client's requests, needs, or situation. Examples of industries that use job order systems are custom home builders, commercial printing companies, motion picture companies, construction contractors, repair shops, accounting and law firms, hospitals, shipbuilders, and architects.

LO1 BT: C Difficulty: Easy TOT: 4 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

4. A process cost system is most likely to be used by manufacturing firms with continuous production flows usually found in mass production, assembly line, large-volume, uniform, or relatively similar product industries. Companies producing appliances, chemicals, pharmaceuticals, rubber and tires, plastics, cement, petroleum, and automobiles utilize process cost systems.

LO1 BT: C Difficulty: Easy TOT: 3 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

5. The major steps in the flow of costs in a job order cost system are: (1) accumulating the manufacturing costs incurred and (2) assigning the accumulated costs to work done.

LO1 BT: K Difficulty: Easy TOT: 2 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

6. The three inventory control accounts and their subsidiary ledgers are:

Raw materials inventory—materials inventory records.
Work in process inventory—job cost sheets.
Finished goods inventory—finished goods records.

LO1 BT: C Difficulty: Easy TOT: 3 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

7. The source documents used in accumulating direct labor costs are time tickets and time cards.

LO1 BT: K Difficulty: Easy TOT: 1 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

8. Disagree. Entries to Manufacturing Overhead are also made at the end of an accounting period. For example, there will be adjusting entries for factory depreciation, property taxes, and insurance.

LO1 BT: K Difficulty: Easy TOT: 2 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

9. The source document for materials is the materials requisition slip and the source document for labor is the time ticket. The entries are:

Questions Chapter 2 (Continued)

Materials			Labor		
Work in Process Inventory	XX		Work in Process Inventory	XX	
Manufacturing Overhead	XX		Manufacturing Overhead	XX	
Raw Materials Inventory		XX	Factory Labor		XX

LO2 BT: C Difficulty: Easy TOT: 4 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

10. The purpose of a job cost sheet is to record the costs chargeable to a specific job and to determine the total and unit costs of the completed job.

LO2 BT: C Difficulty: Easy TOT: 2 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

11. The source documents for charging costs to specific jobs are materials requisition slips for direct materials, time tickets for direct labor, and the predetermined overhead rate for manufacturing overhead.

LO2 BT: K Difficulty: Easy TOT: 2 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

12. The materials requisition slip is a business document used as an authorization to issue materials from inventory to production. It is approved and signed by authorized personnel so that materials may be removed from inventory and charged to production, to specific jobs, departments, or processes. The materials requisition slip is the basis for posting to the materials inventory records and to the job cost sheet.

LO2 BT: K Difficulty: Easy TOT: 4 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

13. Disagree. Actual manufacturing overhead cannot be determined until the end of a period of time. Consequently, there could be a significant delay in assigning overhead and in determining the total cost of the completed job.

LO3 BT: C Difficulty: Easy TOT: 2 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

14. The elements for computing the predetermined overhead rate are the estimated annual overhead costs and an expected activity base such as direct labor hours. The rate is computed by dividing the estimated annual overhead costs by the expected annual operating activity.

LO3 BT: C Difficulty: Easy TOT: 2 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

15. At any point in time, the balance in Work in Process Inventory should equal the sum of the costs shown on the job cost sheets of unfinished jobs. Alternatively, posting to Work in Process Inventory may be compared with the sum of the postings to the job cost sheets for each of the manufacturing cost elements.

LO3 BT: K Difficulty: Easy TOT: 3 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

16. Jane is incorrect. There is a difference in computing total manufacturing costs. In job order costing, manufacturing overhead applied is used, whereas in Chapter 1, actual manufacturing overhead is used.

LO4 BT: C Difficulty: Easy TOT: 2 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

17. Underapplied overhead means that the overhead assigned to work in process is less than the overhead incurred. Overapplied overhead means that the overhead assigned to work in process is greater than the overhead incurred. Manufacturing Overhead will have a debit balance when overhead is underapplied and a credit balance when overhead is overapplied.

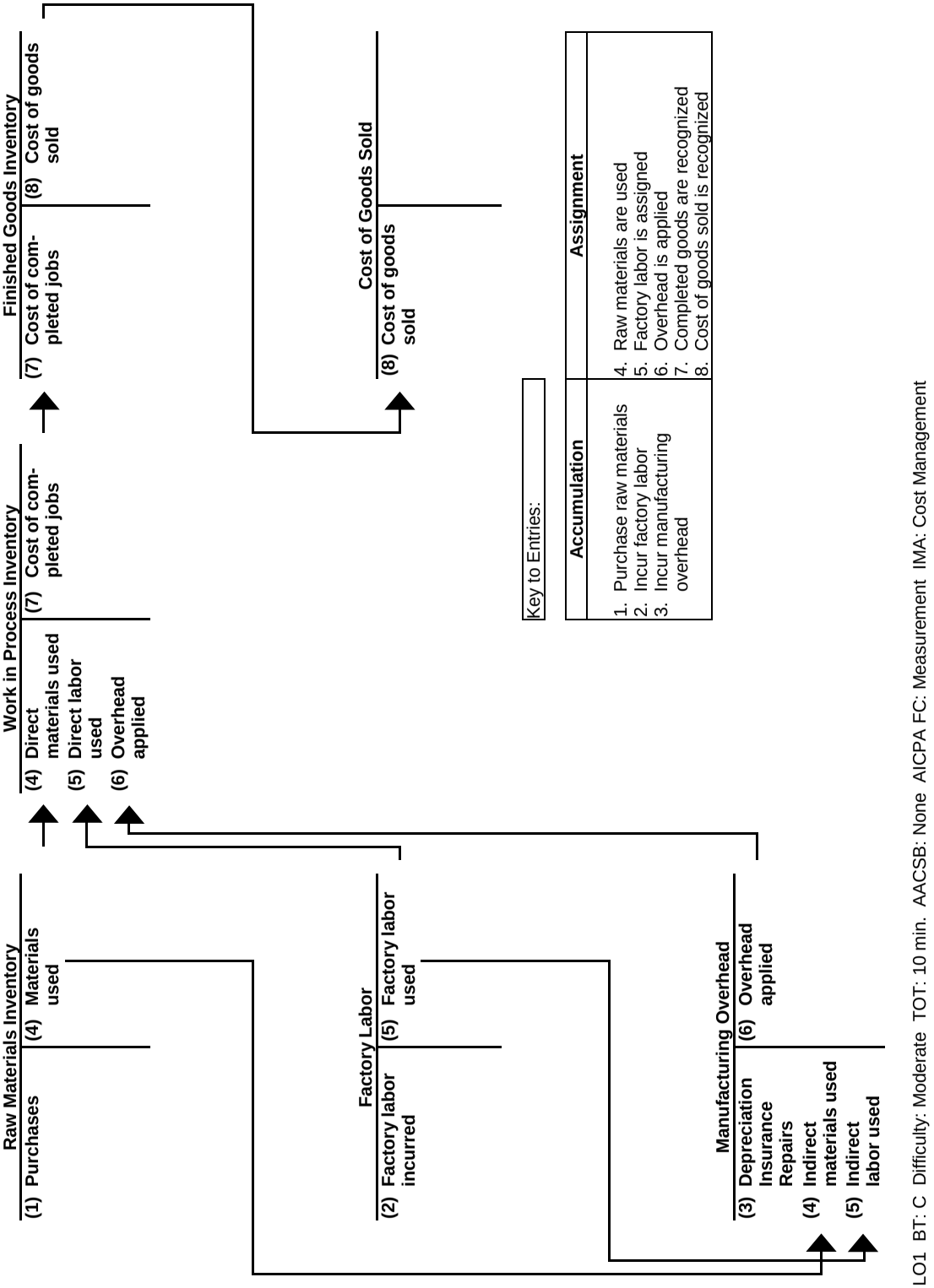
LO5 BT: C Difficulty: Easy TOT: 4 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

18. Under- or overapplied overhead is not closed to Income Summary. The balance in Manufacturing Overhead is eliminated through an adjusting entry. Under- or overapplied overhead generally is considered to be an adjustment of Cost of Goods Sold.

LO5 BT: C Difficulty: Easy TOT: 2 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 2-1



LO1 BT: C Difficulty: Moderate TOT: 10 min. AACSB: None AICPA FC: Measurement IMA: Cost Management

BRIEF EXERCISE 2-2

Jan. 31	Raw Materials Inventory	4,000	
	Accounts Payable		4,000
31	Factory Labor	6,000	
	Factory Wages Payable		5,200
	Employer Payroll Taxes Payable		800
31	Manufacturing Overhead	2,000	
	Utilities Payable		2,000

LO1 BT: AP Difficulty: Easy TOT: 5 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

BRIEF EXERCISE 2-3

Jan. 31	Work in Process Inventory	2,800	
	Manufacturing Overhead	600	
	Raw Materials Inventory		3,400

LO2 BT: AP Difficulty: Easy TOT: 2 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

BRIEF EXERCISE 2-4

Jan. 31	Work in Process Inventory	5,200	
	Manufacturing Overhead	800	
	Factory Labor		6,000

LO2 BT: AP Difficulty: Easy TOT: 2 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

BRIEF EXERCISE 2-5

Job 1		
Date	Direct Materials	Direct Labor
1/31	900	
1/31		2,200

Job 2		
Date	Direct Materials	Direct Labor
1/31	1,200	
1/31		1,600

Job 3		
Date	Direct Materials	Direct Labor
1/31	700	
1/31		1,400

LO2 BT: AP Difficulty: Easy TOT: 4 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

BRIEF EXERCISE 2-6

Overhead rate per direct labor cost is 180%, or ($900,000 ÷ $500,000).
Overhead rate per direct labor hour is $18, or ($900,000 ÷ 50,000 DLH).
Overhead rate per machine hour is $9, or ($900,000 ÷ 100,000 MH).

LO3 BT: AP Difficulty: Easy TOT: 4 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

BRIEF EXERCISE 2-7

Jan. 31	**Work in Process Inventory**	**28,000**	
	Manufacturing Overhead ($40,000 X 70%)		**28,000**
Feb. 28	**Work in Process Inventory**	**21,000**	
	Manufacturing Overhead ($30,000 X 70%)		**21,000**
Mar. 31	**Work in Process Inventory**	**35,000**	
	Manufacturing Overhead ($50,000 X 70%)		**35,000**

LO3 BT: AP Difficulty: Easy TOT: 4 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

BRIEF EXERCISE 2-8

Mar. 31	**Finished Goods Inventory**	**50,000**	
	Work in Process Inventory		**50,000**
31	**Cash**	**35,000**	
	Sales Revenue		**35,000**
31	**Cost of Goods Sold**	**20,000**	
	Finished Goods Inventory		**20,000**

LO4 BT: AP Difficulty: Easy TOT: 5 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

BRIEF EXERCISE 2-9

Service Contracts in Process	**28,000**	
Operating Overhead	**8,000**	
Service Salaries and Wages		**36,000**
Service Contracts in Process ($28,000 X .25)	**7,000**	
Operating Overhead		**7,000**

LO4 BT: AP Difficulty: Easy TOT: 4 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

BRIEF EXERCISE 2-10

Shimeca Company

Dec. 31	**Cost of Goods Sold**	**1,200**	
	Manufacturing Overhead		**1,200**

Garcia Company

Dec. 31	**Manufacturing Overhead**	**900**	
	Cost of Goods Sold		**900**

LO5 BT: AP Difficulty: Easy TOT: 4 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

SOLUTIONS FOR DO IT! EXERCISES

DO IT! 2-1

(a)	Raw Materials Inventory	18,000	
	Accounts Payable		18,000
	(Purchases of raw materials on account)		
(b)	Factory Labor	40,000	
	Factory Wages Payable		31,000
	Employer Payroll Taxes Payable		9,000
	(To record factory labor costs)		
(c)	Manufacturing Overhead	15,300	
	Accumulated Depreciation—Buildings		9,500
	Utilities Payable		3,100
	Prepaid Property Taxes		2,700
	(To record overhead costs)		

LO1 BT: AP Difficulty: Easy TOT: 6 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

DO IT! 2-2

The three summary entries are:

Work in Process Inventory ($7,200 + $9,000)	16,200	
Raw Materials Inventory		16,200
(To assign materials to jobs)		
Work Process Inventory ($4,000 + $8,000)	12,000	
Factory Labor		12,000
(To assign labor to jobs)		
Work in Process Inventory ($5,200 + $9,800)	15,000	
Manufacturing Overhead		15,000
(To assign overhead to jobs)		

LO2 BT: AP Difficulty: Easy TOT: 5 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

DO IT! 2-3

The predetermined overhead for Washburn Company is:

$200,000 ÷ 2,500 hours = $80.00

DO IT! 2-3 (Continued)

The amount of overhead assigned to number 551 would be:

90 hours × $80.00 = $7,200

The entry to record the assignment of overhead to job number 551 on January 15th is:

January 15	**Work in Process Inventory**	**7,200**	
	Manufacturing Overhead		**7,200**
	(To assign overhead to jobs)		

LO3 BT: AP Difficulty: Easy TOT: 5 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management
[($200,000 ÷ 2,500 hrs. = $80/hr.); (90 hrs. x $80/hr. = $7,200)]
[(Expected MOH ÷ Expected MH = Predet. OH rate); (Act. MH x Predet. OH rate = Applied OH)]

DO IT! 2-4

Finished Goods Inventory	**120,000**	
Work in Process Inventory		**120,000**
(To record completion of Job 310, costing $70,000 and Job 312, costing $50,000)		
Accounts Receivable	**90,000**	
Sales Revenue		**90,000**
(To record sale of Job 312)		
Cost of Goods Sold	**50,000**	
Finished Goods Inventory		**50,000**
(To record cost of goods sold for Job 312)		

LO4 BT: AP Difficulty: Easy TOT: 5 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

DO IT! 2-5

Manufacturing overhead applied = 130% X $85,000 = $110,500
Underapplied manufacturing overhead = $115,000 – $110,500 = $4,500

LO5 BT: AP Difficulty: Easy TOT: 4 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management
[($85,000 x 130% = $110,500); ($115,000 - $110,500 = $4,500)]
[(Actual DL cost x Predet. OH rate = Applied OH); (Actual OH – Applied OH = Underapp. MOH)]

SOLUTIONS TO EXERCISES

EXERCISE 2-1

(a)	Factory Labor	90,000	
	Factory Wages Payable		76,000
	Employer Payroll Taxes Payable		8,000
	Employer Fringe Benefits Payable		6,000
(b)	Work in Process Inventory ($90,000 X 85%)	76,500	
	Manufacturing Overhead	13,500	
	Factory Labor		90,000

LO1, 2 BT: AP Difficulty: Easy TOT: 5 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-2

(a)	May 31	Work in Process Inventory	10,400	
		Manufacturing Overhead	800	
		Raw Materials Inventory		11,200
	31	Work in Process Inventory	12,500	
		Manufacturing Overhead	1,200	
		Factory Labor		13,700
	31	Work in Process Inventory ($12,500 X 60%)	7,500	
		Manufacturing Overhead		7,500
	31	Finished Goods Inventory	7,540	
		Work in Process Inventory ($2,000 + $2,500 + $1,900 + $1,140*)		7,540

*$1,900 X 60%

(b)

Work in Process Inventory					
May 1	Balance	3,500	May 31		7,540
31		10,400			
31		12,500			
31		7,500			
May 31	Balance	26,360			

EXERCISE 2-2 (Continued)

Job Cost Sheets

Job No.	Beginning Work in Process	Direct Material	Direct Labor	Manufacturing* Overhead	Total
430	$1,500	$3,500	$ 3,000	$1,800	$ 9,800
431	0	4,400	7,600	4,560	16,560
	$1,500	$7,900	$10,600	$6,360	$26,360

***Direct labor X .60**

LO1, 2, 3, 4 BT: AP Difficulty: Easy TOT: 10 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-3

(a) 1. $15,200, or ($5,000 + $6,000 + $4,200).

2. Last year 70%, or ($4,200 ÷ $6,000); this year 80% (either $6,400 ÷ $8,000 or $3,200 ÷ $4,000).

[Last yr.: ($4,200 ÷ $6,000 = 70%); This yr.: ($3,200 ÷ $4,000 = 80%)]
[Last yr.: (MOH cost ÷ DL cost = MOH predet. OH rate); This yr.: (MOH ÷ DL cost = Predet. OH rate)]

(b)	Jan. 31	Work in Process Inventory	8,000	
		Raw Materials Inventory.....		8,000
	31	Work in Process Inventory	12,000	
		Factory Labor.....		12,000
	31	Work in Process Inventory	9,600	
		Manufacturing Overhead.....		9,600
	31	Finished Goods Inventory	44,800	
		Work in Process Inventory.....		44,800

LO1, 2, 3, 4 BT: AP Difficulty: Easy TOT: 10 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-4

(a) + $50,000 + $42,500 = $145,650
(a) = $53,150

$145,650 + (b) = $201,500
(b) = $55,850

EXERCISE 2-4 (Continued)

$201,500 – (c) = $192,300
(c) = $9,200

[Note: The instructions indicate that manufacturing overhead is applied on the basis of direct labor cost, and the rate is the same in all cases. From Case A, a student should note the overhead rate to be 85%, or ($42,500 ÷ $50,000).]

(d) = .85 X $140,000
(d) = $119,000
[($42,500 ÷ $50,000) x $140,000 = $119,500]
[From Case A: (MOH applied ÷ DL cost) x Case B DL cost = Case B MOH app.]

$83,000 + $140,000 + $119,000 = (e)
(e) = $342,000

$342,000 + $15,500 = (f)
(f) = $357,500

$357,500 – $11,800 = (g)
(g) = $345,700
LO1, 5 BT: AN Difficulty: Moderate TOT: 20 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-5

(a) $2.40 per machine hour ($300,000 ÷ 125,000 MH).

(b) ($322,000) – ($2.40 x 130,000 Machine Hours)
$322,000 – $312,000 = $10,000 underapplied

[$322,000 – ($2.40 x 130,000) = $10,000 underapp.]

(c) Cost of Goods Sold 10,000
Manufacturing Overhead 10,000
LO3, 5 BT: AP Difficulty: Easy TOT: 5 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-6

(a) (1) The source documents are:

Direct materials—Materials requisition slips.
Direct labor—Time tickets.
Manufacturing overhead—Predetermined overhead rate.

(2) The predetermined overhead rate is 125% of direct labor cost. For example, on July 15, the computation is $550 ÷ $440 = 125%. The same result is obtained on July 22 and 31.

($550 ÷ $440 = 125% of DL cost)
(July 15: MOH cost ÷ DL cost = Predet. MOH rate)

(3) The total cost is:

Direct materials	$4,700
Direct labor	1,360
Manufacturing overhead	1,700
	$7,760

The unit cost is $3.10 ($7,760 ÷ 2,500).

(b)	**July 31**	Finished Goods Inventory	7,760	
		Work in Process Inventory		7,760

LO1, 2, 3, 4 BT: AP Difficulty: Easy TOT: 10 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-7

1.	Raw Materials Inventory	46,300	
	Accounts Payable		46,300
2.	Work in Process Inventory	29,200	
	Manufacturing Overhead	6,800	
	Raw Materials Inventory		36,000
3.	Factory Labor	59,900	
	Factory Wages Payable		51,000
	Employer Payroll Taxes Payable		8,900
4.	Work in Process Inventory	54,000	
	Manufacturing Overhead	5,900	
	Factory Labor		59,900

EXERCISE 2-7 (Continued)

5.	Manufacturing Overhead	80,500	
	Accounts Payable		80,500
6.	Depreciation Expense	8,100	
	Accumulated Depreciation—Building		8,100
7.	Work in Process Inventory ($54,000 X 150%)	81,000	
	Manufacturing Overhead		81,000
8.	Finished Goods Inventory	88,000	
	Work in Process Inventory		88,000
9.	Accounts Receivable	103,000	
	Sales Revenue		103,000
	Cost of Goods Sold	75,000	
	Finished Goods Inventory		75,000

LO1, 2, 3, 4 BT: AP Difficulty: Easy TOT: 18 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-8

1.	Raw Materials Inventory	192,000	
	Accounts Payable		192,000
	Factory Labor	87,300	
	Factory Wages Payable		87,300
2.	Work in Process Inventory	153,530	
	Manufacturing Overhead	4,470	
	Raw Materials Inventory		158,000
	Work in Process Inventory	80,000	
	Manufacturing Overhead	7,300	
	Factory Labor		87,300
3.	Manufacturing Overhead	49,500	
	Accounts Payable		49,500

EXERCISE 2-8 (Continued)

4.	Manufacturing Overhead	14,550	
	Accumulated Depreciation—Equipment		14,550
5.	Depreciation Expense	14,300	
	Accumulated Depreciation—Building		14,300
6.	Work in Process Inventory	72,000	
	Manufacturing Overhead (90% X $80,000)		72,000
7.	Finished Goods Inventory	240,930	
	Work in Process Inventory		240,930

Computation of cost of jobs finished:

Job	Direct Materials	Direct Labor	Manufacturing Overhead	Total
A20	$35,240	$18,000	$16,200	$ 69,440
A21	42,920	22,000	19,800	84,720
A23	39,270	25,000	22,500	86,770
				$240,930

LO1, 2, 3, 4 BT: AP Difficulty: Easy TOT: 18 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-9

(a)

LOPEZ COMPANY
Cost of Goods Manufactured Schedule
For the Month Ended May 31, 2020

Work in process, May 1		$ 14,700
Direct materials used	$62,400	
Direct labor	50,000	
Manufacturing overhead applied	40,000	
Total manufacturing costs		152,400
Total cost of work in process		167,100
Less: Work in process, May 31		15,900
Cost of goods manufactured		$151,200

[($14,700 + ($62,400 + $50,000 + $40,000)) - $15,900 = $151,200]

EXERCISE 2-9 (Continued)

[(Beg. WIP + (DM + DL + MOH app.)) – End. WIP = COGM]

(b)

LOPEZ COMPANY
(Partial) Income Statement
For the Month Ended May 31, 2020

Sales revenue		$215,000
Cost of goods sold		
Finished goods, May 1	$ 12,600	
Cost of goods manufactured	151,200	
Cost of goods available for sale	163,800	
Less: Finished goods, May 31	9,500	
Cost of goods sold		154,300
Gross profit		$ 60,700

(c)

LOPEZ COMPANY
(Partial) Balance sheet
May 31, 2020

Current assets:		
Finished goods inventory	$ 9,500	
Work in process inventory	15,900	
Raw materials inventory	7,100	$32,500

LO1, 5 BT: AP Difficulty: Easy TOT: 18 min. AACSB: Analytic AICPA FC: Reporting IMA: Reporting

EXERCISE 2-10

(a) Work in Process Inventory

April 30	$ 9,300	(#10, $5,200 + #11, $4,100)
May 31	$18,600	(#11, ($4,100 + $3,900) + #13, $4,700 + #14, $5,900)
June 30	$ 9,500	(#14, $5,900 + $3,600)

[(Apr. 30: $5,200 + $4,100 = $9,300); (May 31: $8,000 + $4,700 + $5,900 = $18,600); (June 30: $5,900 + $3,600 = $9,500)]
[(Apr. 30: Job #10 + Job #11 = End. WIP); (May 31: (Job #11 + Job #13 + Job #14 = End. WIP); (June 30: Job #14 = End. WIP)]

(b) Finished Goods Inventory

April 30	$ 1,200	(#12)
May 31	$ 9,600	(#10)
June 30	$19,200	(#11, $10,000 + #13, $9,200)

EXERCISE 2-10 (Cont'd)

(c) Gross Profit

Month	Job Number	Sales	Cost of Goods Sold	Gross Profit
May	12	$ 1,500	$ 1,200	$ 300
June	10	12,000	9,600	2,400
July	11/13	24,000	19,200	4,800

[(May: ($1,200 x 125%) - $1,200 = $300); (June: ($9,600 x 125%) - $9,600 = $2,400); (July: ($19,200 x 125%) - $19,200 = $4,800)]
[(May: (CGS x 1 + Markup %) – CGS = GP); (June: (CGS x 1 + Markup %) – CGS = GP); (July: (CGS x 1 + Markup %) – CGS = GP)]
LO2, 4 BT: AP Difficulty: Moderate TOT: 12 min. AACSB: Analytic AICPA FC: Measurement, Reporting IMA: Cost management, Reporting

EXERCISE 2-11

(a)

1.	Supplies	1,800	
	Accounts Payable		1,800
2.	Service Contracts in Process	720	
	Operating Overhead	480	
	Supplies		1,200
3.	Service Contracts in Process	56,000	
	Operating Overhead	14,000	
	Service Salaries and Wages		70,000
4.	Operating Overhead	40,000	
	Cash		40,000
5.	Service Contracts in Process ($56,000 X 90%)	50,400	
	Operating Overhead		50,400
6.	Cost of Completed Service Contracts	75,000	
	Service Contracts in Process		75,000

EXERCISE 2-11 (Continued)

(b)

Service Contracts in Process			
2.	720	75,000	(6)
3.	56,000		
5.	50,400		
	32,120		

LO1, 3, 4 BT: AP Difficulty: Easy TOT: 15 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-12

(a)

	Waters	Renolds	Bayfield
Direct materials	$ 600	$ 400	$ 200
Auditor labor costs	5,400	6,600	3,375
Applied overhead*	3,600	4,400	2,250
Total cost	$9,600	$11,400	$5,825

*Waters: 72 x $50 = $3,600 Renold: 88 x $50 = $4,400 Bayfield: 45 x $50 = $2,250
[(Waters app. OH: 72 x $50 = $3,600); (Renolds app. OH: 88 x $50 = $4,400); (Bayfield app. OH: 45 x $50 = $2,250)]
[(Waters app. OH: (Auditor hrs. x Predet. OH rate = App. OH); (Renolds app. OH: (Auditor hrs. x Predet. OH rate = App. OH); (Bayfield app. OH: (Auditor hrs. x Predet. OH rate = App. OH)]

(b) The Waters job is the only incomplete job, therefore, $9,600.

(c)

Actual overhead	$11,000 (DR)
Applied overhead	10,250 (CR)
Balance (underapplied)	$ 750 (DR)

[$11,000 – ($3,600 + $4,400 + $2,250) = $750]
[Act. OH – (Waters app. OH + Renolds app. OH + Bayfield app. OH) = Underapp. OH]
LO2, 3, 4 BT: AP Difficulty: Easy TOT: 8 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

EXERCISE 2-13

(a) Predetermined overhead rate = Estimated overhead ÷ Estimated decorator hours
= $960,000 ÷ 40,000 decorator hours
= $24 per decorator hour

(b) Service Contracts in Process (40,500 hrs X $24)..... 972,000
Operating Overhead..... 972,000

(c) Actual overhead $982,800

Applied overhead	**972,000**
Balance	**$ 10,800 underapplied**

EXERCISE 2-13 (Continued)

[$982,800 – (40,500 x $24) = $10,800]
[Act. OH – (Act. dec. hrs. x Predet. OH rate) = Underapp. OH]
LO3, 5 BT: AP Difficulty: Easy TOT: 8 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

SOLUTIONS TO PROBLEMS

PROBLEM 2-1A

(a) $840,000 ÷ $700,000 direct labor costs = 120% of direct labor costs
($840,000 ÷ $700,000 = 120% of DL cost)
(Est. OH costs ÷ Est. DL cost = Predet. OH rate)

(b) See solution to part (e) for job cost sheets

(c)	**Raw Materials Inventory**	**90,000**	
	Accounts Payable		**90,000**
	Factory Labor	**70,000**	
	Factory Wages Payable		**54,000**
	Employer Payroll Taxes Payable		**16,000**
	Manufacturing Overhead	**65,000**	
	Accounts Payable		**16,000**
	Accumulated Depreciation—Equipment		**12,000**
	Raw Materials Inventory		**17,000**
	Factory Labor		**20,000**
(d)	**Work in Process Inventory**	**79,000**	
	Raw Materials Inventory ($10,000 + $39,000 + $30,000)		**79,000**
	Work in Process Inventory	**50,000**	
	Factory Labor ($5,000 + $25,000 + $20,000)		**50,000**
	Work in Process Inventory	**60,000**	
	Manufacturing Overhead ($50,000 X 120% of direct labor costs)		**60,000**

See solution to part (e) for postings to job cost sheets.

PROBLEM 2-1A (Continued)

(b)&(e) Job Cost Sheets

Job No. 50

Date	Direct Materials	Direct Labor	Manufacturing Overhead
Beg.	$20,000	$12,000	$16,000
Jan.	10,000	5,000	6,000*
	$30,000	$17,000	$22,000

Cost of completed job	
Direct materials	$30,000
Direct labor	17,000
Manufacturing overhead	22,000
Total cost	$69,000

***$5,000 X 120%**

[Job #50: $5,000 x 120% = $6,000]
[Job #50: DL cost x Predet. OH rate = App. OH]

Job No. 51

Date	Direct Materials	Direct Labor	Manufacturing Overhead
Jan.	$39,000	$25,000	$30,000**
	$39,000	$25,000	$30,000

Cost of completed job	
Direct materials	$39,000
Direct labor	25,000
Manufacturing overhead	30,000
Total cost	$94,000

****$25,000 X 120%**

[Job #51: $25,000 x 120% = $30,000]
[Job #51: DL cost x Predet. OH rate = App. OH]

Job No. 52

Date	Direct Materials	Direct Labor	Manufacturing Overhead
Jan.	$30,000	$20,000	$24,000***

*****$20,000 X 120%**

[Job #52: $20,000 x 120% = $24,000]
[Job #52: DL cost x Predet. OH rate = App. OH]

PROBLEM 2-1A (Continued)

	Finished Goods Inventory	163,000	
	Work in Process Inventory ($69,000 + $94,000)		163,000
(f)	Accounts Receivable	280,000	
	Sales Revenue ($122,000 + $158,000)		280,000
	Cost of Goods Sold	159,000	
	Finished Goods Inventory ($90,000 + $69,000)		159,000

(g)

Finished Goods Inventory

Beginning balance	90,000	159,000	Cost of jobs 49 and 50 sold
Cost of completed jobs 50 and 51	163,000		
Ending balance	94,000		

The balance in this account consists of the cost of completed Job No. 51 which has not yet been sold.

[$90,000 + ($69,000 + $94,000) – ($90,000 + $69,000) = $94,000]
[Beg. bal. + (Cost of compltd. jobs 50 & 51) – (Cost of jobs 49 & 50 sold) = End. bal.]

(h)

Manufacturing Overhead

Actual	Applied
65,000	60,000
5,000	

The balance in the Manufacturing Overhead account is underapplied.

[$65,000 – ($6,000 + $30,000 + $24,000) = $5,000]
[Act. MOH – (MOH app. To jobs #50, #51, & #52) = MOH underapp.]
LO1, 2, 3, 4, 5 BT: AP Difficulty: Easy TOT: 40 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

PROBLEM 2-2A

(a)

Work in Process Inventory

1/1	Balance (1)	128,400	Completed work (5) (c)	386,200
	Direct materials (2)	131,000		
	Direct labor (3)	139,000		
	Manufacturing overhead (4)	166,800		
12/31	Balance	179,000		

(1)

Job 7640	$ 77,800
Job 7641	50,600
	$128,400

(2)

Job 7640	$ 30,000
Job 7641	43,000
Job 7642	58,000
	$131,000

(3)

Job 7640	$ 36,000
Job 7641	48,000
Job 7642	55,000
	$139,000

(4)

Job 7640	$ 43,200
Job 7641	57,600
Job 7642	66,000
	$166,800

(5) (a) Job 7640

Beginning balance	$ 77,800
Direct materials	30,000
Direct labor	36,000
Manufacturing overhead	43,200
	$187,000

(b) Job 7641

Beginning balance	$ 50,600
Direct materials	43,000
Direct labor	48,000
Manufacturing overhead	57,600
	$199,200

(c) Total cost of completed work

Job 7640	$187,000
Job 7641	199,200
	$386,200

PROBLEM 2-2A (Continued)

Work in process balance	**$179,000**
Unfinished job No. 7642	**$179,000 (*)**

(*) Current year's cost

Direct materials	**$ 58,000**
Direct labor	**55,000**
Manufacturing overhead	**66,000**
	$179,000

[($77,800 + $50,600) + ($30,000 + $43,000 + $58,000) + ($36,000 + $48,000 + $55,000) + ($43,200 + $57,600 + $66,000) – ($187,000 + $199,200) = $179,000]
[Beg. WIP bal. + DM + DL + App. OH – Cost of compltd. jobs 7640 & 7641 = End. WIP bal.]

(b) Actual overhead costs

Incurred on account	**$120,000**
Indirect materials	**14,000**
Indirect labor	**18,000**
Depreciation	**8,000**
	$160,000

Applied overhead costs

Job 7640	**$ 43,200**
Job 7641	**57,600**
Job 7642	**66,000**
	$166,800

Actual overhead	**$160,000**
Applied overhead	**166,800**
Overapplied overhead	**$ 6,800**

Manufacturing Overhead	**6,800**	
Cost of Goods Sold		**6,800**

[($120,000 + $14,000 + $18,000 + $8,000) – ($43,200 + $57,600 + $66,000) = $6,800]
[(OH incurred on acct. + Ind. Mat. + Ind. Labor + Depr.) – (App. OH to jobs #7640 + #7641 + #7642) = Overapp. OH]

PROBLEM 2-2A (Cont'd)

(c)	**Sales revenue (given)**		$530,000
	Cost of goods sold		
	Add: Job 7638	$ 87,000	
	Job 7639	92,000	
	Job 7641	199,200	
		378,200	
	Less: Overapplied overhead	6,800	371,400
	Gross profit		$158,600

LO1, 2, 3, 4, 5 BT: AP Difficulty: Moderate TOT: 40 min. AACSB: Analytic AICPA FC: Measurement, Reporting IMA: Cost Management, Reporting

PROBLEM 2-3A

(a)

(1)	Raw Materials Inventory	4,900	
	Accounts Payable		4,900
	Factory Labor	4,800	
	Cash		4,800
	Manufacturing Overhead	1,300	
	Accumulated Depreciation—Equipment		900
	Accounts Payable		400
(2)	Work in Process Inventory	4,900	
	Manufacturing Overhead	1,500	
	Raw Materials Inventory		6,400
	Work in Process Inventory	3,600	
	Manufacturing Overhead	1,200	
	Factory Labor		4,800
	Work in Process Inventory ($3,600 X 1.25)	4,500	
	Manufacturing Overhead		4,500
(3)	Finished Goods Inventory	14,740	
	Work in Process Inventory		14,740

Job	Direct Materials	Direct Labor	Manufacturing Overhead*	Total Costs
Rogers	$1,700	$1,560	$1,950	$ 5,210
Stevens	1,300	900	1,125	3,325
Linton	2,200	1,780	2,225	6,205
				$14,740

*125% X direct labor amount

	Cash	18,900	
	Sales revenue		18,900
	Cost of Goods Sold	14,740	
	Finished Goods Inventory		14,740

PROBLEM 2-3A (Continued)

(b)

Work in Process Inventory

6/1	Balance	5,540	June	Completed work	14,740
	Direct materials	4,900			
	Direct labor	3,600			
	Overhead applied	4,500			
6/30	Balance	3,800			

(c) Work in Process Inventory..... $3,800

Job: Koss (Direct materials $2,000 + Direct labor $800 + Manufacturing overhead $1,000)..... $3,800

(d)

CASE INC.
Cost of Goods Manufactured Schedule
For the Month Ended June 30, 2020

Work in process, June 1.....		$ 5,540
Direct materials used	$4,900	
Direct labor.....	3,600	
Manufacturing overhead applied.....	4,500	
Total manufacturing costs		13,000
Total cost of work in process		18,540
Less: Work in process, June 30		3,800
Cost of goods manufactured		$14,740

[($5,540 + ($4,900 + $3,600 + $4,500)) - $3,800 = $14,740]
[(Beg. WIP + (DM used + DL + MOH app.)) – End. WIP = COGM]
LO1, 2, 3, 4, 5 BT: AP Difficulty: Easy TOT: 40 min. AACSB: Analytic AICPA FC: Measurement, Reporting IMA: Cost Management, Reporting

PROBLEM 2-4A

(a) **Department D:** $1,200,000 ÷ $1,500,000 = 80% of direct labor cost.
Department E: $1,500,000 ÷ 125,000 = $12.00 per direct labor hour.
Department K: $900,000 ÷ 120,000 = $7.50 per machine hour.

(b)

	Department		
Manufacturing Costs	**D**	**E**	**K**
Direct materials	$140,000	$126,000	$ 78,000
Direct labor	120,000	110,000	37,500
Overhead applied	96,000*	132,000**	78,000***
Total	$356,000	$368,000	$193,500

*$120,000 X 80%
**11,000 X $12.00
***10,400 X $7.50

(c)

	Department		
Manufacturing Overhead	**D**	**E**	**K**
Incurred	$99,000	$124,000	$79,000
Applied	96,000	132,000	78,000
Under (over) applied	$ 3,000	$ (8,000)	$ 1,000

[(D: $99,000 – ($120,000 x 80%) = $3,000); (E: $124,000 – (11,000 x $12) = ($8,000)); (K: $79,000 – (10,400 x $7.50) = $1,000)]
[(D: Act. MOH – (DL cost x Predet. MOH rate) = Underapp. MOH); (E: Act. MOH – (Act. DL hrs. x Predet. MOH rate) = Overapp. MOH); (K: Act. MOH – (Act. MH x Predet. MOH rate) = Underapp. MOH)]
LO3, 5 BT: AP Difficulty: Easy TOT: 25 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

PROBLEM 2-5A

(a) $7,600 ($16,850 + $7,975 – $17,225).
($16,850 + $7,975 - $17,225 = $7,600)
(RM acquisitions + RM end. bal. – RM purch. = RM beg. bal.)

(b) $36,000 [$9,750 + $15,000 + (75% X $15,000)]. (Given in other data).

(c) $13,950 ($16,850 – $2,900).
($16,850 - $2,900 = $13,950)
(RM acquisitions – Ind. Mat. = DM)

(d) $6,300 ($8,400 X 75%).

(e) $12,200 [Given in other data—$3,800 + $4,800 + (75% X $4,800)].
[$3,800 + $4,800 + (75% x $4,800) = $12,200]
[Job 158: DM + DL cost + (Predet. MOH rate x DL cost) = End. bal. WIP]

(f) $52,450 ($36,000 + $13,950 + $8,400 + $6,300 – $12,200).
($36,000 + $13,950 + $8,400 + $6,300 - $12,200 = $52,450)
(Beg. bal. WIP + DM + DL + MOH app. – End. bal. WIP = Jobs completed]

(g) $5,000 (Given in other data).

(h) $52,450 (See (f) above).

(i) $53,450 ($5,000 + $52,450 – $4,000).
($5,000 + $52,450 - $4,000 = $53,450)
(Beg. bal. fin. gds. inv. + Jobs completed – End. bal. fin. gds. inv. = CGS)

(j) $4,000 (Given in other data).

(k) $12,025 (Equal to factory labor incurred).

(l) $3,625 ($12,025 – $8,400).

(m) $6,300 ($7,770* – $1,470) or (Same as (d)).

***$2,900 + $3,625 + $1,245**

LO1, 2, 3, 4, 5 BT: AN Difficulty: Complex TOT: 40 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

Cost for one kayak:

Direct Materials		
Polyethylene powder	**54 pounds @ $1.50 per pound**	**$ 81**
Finishing kit	**1 kit @ $170**	**170**
Direct Labor		
More skilled	**2 hours @ $15 per hour**	**30**
Less skilled	**3 hours @ $12 per hour**	**36**
Manufacturing overhead		
150% of direct labor costs	**150% x $66**	**99**
Total cost for one kayak		**$ 416**

Cost for order of 20 kayaks

$416 per kayak x 20 kayaks **$8,320**

LO2, 3 BT: AP Difficulty: Easy TOT: 10 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

CT 2-1 DECISION-MAKING ACROSS THE ORGANIZATION

(a) The manufacturing cost element that is responsible for the fluctuating unit costs is manufacturing overhead. Manufacturing overhead is being included as incurred rather than being applied on a predetermined basis. Direct materials and direct labor are not the cause as they have the same unit cost per batch in each quarter.

(b) The solution is to apply overhead using a predetermined overhead rate based on a relevant basis of production activity. Based on actual overhead incurred and using batches of product TC-1 as the activity base, the overhead rate is $16,000 per batch [($105,000 + $153,000 + $97,000 + $125,000) ÷ 30]. Another approach would be to use direct labor cost as the relevant basis to apply overhead on a predetermined basis. For example, a rate of 133 1/3% of direct labor cost ($480,000 ÷ $360,000) could be used. Either approach will provide the same result.

(c) The quarterly results using a predetermined overhead rate based on batches produced are as follows:

		Quarter			
Costs		**1**	**2**	**3**	**4**
Direct materials		$100,000	$220,000	$ 80,000	$200,000
Direct labor		60,000	132,000	48,000	120,000
Manufacturing overhead Applied ($16,000 X batches)		80,000	176,000	64,000	160,000
Total	(a)	$240,000	$528,000	$192,000	$480,000
Production in batches	(b)	5	11	4	10
Unit cost (per batch) (a) ÷ (b)		$ 48,000	$ 48,000	$ 48,000	$ 48,000

(Note: The unit cost of a batch remains the same in each quarter. Both sales and production should be pleased with this solution to fluctuating unit costs.)

LO2, 3 BT: E Difficulty: Moderate TOT: 20 min. AACSB: Analytic AICPA FC: Measurement IMA: Cost Management

CT 2-2 MANAGERIAL ANALYSIS

1. (a)

Work in Process Inventory	25,000	
Raw Materials Inventory		25,000

(b) If not corrected, the balance sheet is affected. Cash is understated and Raw Materials Inventory is overstated.

2. (a)

Sales Bonus Expense	12,000	
Cash		12,000

(b) Both the income statement and the balance sheet are affected. In the income statement, Sales Bonus Expense is understated, Income Tax Expense is overstated, and net income is overstated. The error causes manufacturing overhead to be overstated. This affects Cost of Goods Sold, since the over- or underapplied balance is closed out to Cost of Goods Sold. The error in Cost of Goods Sold also has an effect on Retained Earnings. Also, Retained Earnings is overstated because of the overstatement of net income, and Income Taxes Payable is overstated.

3. (a)

Factory Labor	120,000	
Factory Wages Payable		102,000
Employer Payroll Taxes Payable		18,000

(b) If not corrected, both the income statement and the balance sheet are affected. On the income statement, Cost of Goods Sold is understated and Wages Expense is overstated. On the balance sheet, Cash, Factory Wages Payable, and Employer Payroll Taxes Payable are understated.

CT 2-2 (Continued)

4. (a)

Manufacturing Overhead	**3,000**	
Raw Materials Inventory		**3,000**

(b) Both the income statement and balance sheet are affected. If units that were in process during the month have been sold, then in the income statement Cost of Goods Sold is overstated, Income Tax Expense is understated, and net income is understated. This causes the Retained Earnings and Income Taxes Payable in the balance sheet to be understated. Also the error causes underapplied overhead to be understated or overapplied overhead to be overstated. This affects Cost of Goods Sold, since the over- or underapplied balance is closed out to Cost of Goods Sold. The error in Cost of Goods Sold also has an affect on Retained Earnings.

LO2, 3, 5 BT: AN Difficulty: Moderate TOT: 30 min. AACSB: Analytic AICPA FC: Measurement, Reporting AICPA PC: Communication IMA: Cost Management, Reporting

CT 2-3 REAL-WORLD FOCUS

(a) Candidates for the CMA or CFM Certificate must complete two continuous years of professional experience in management accounting or financial management. This requirement may be completed prior to or within seven years of passing the examination.

(b) CMAs, CFMs, and candidates who have completed the CMA and/or the CFM examination but have not yet met the experience requirement, are required to maintain their proficiency in the fields of management accounting and financial management. This includes knowledge of new concepts and techniques as well as their application in the management accounting and financial management professions. The objective is to maintain the professional competence of the individual and to enhance one's ability to perform job-related requirements. Persons who have retired need not meet continuing education requirements. The continuing requirement is 30 hours per year and at least 2 of those hours must be ethics-related.

A broad range of subjects may be included in the programs for which hours of credit will be given. The subjects should be related to the topics covered on the CMA/CFM examination and/or to an individual's job responsibilities. Illustrative of the subjects that may qualify are: all aspects of accounting, financial management, business applications of mathematics and statistics, computer science, economics, management, production, marketing, business law, and organizational behavior.

LO N/A BT: C Difficulty: Easy TOT: 20 min AACSB: Technology, Communication AICPA FC: Reporting AICPA PC: Communication IMA: None

CT 2-4 COMMUNICATION ACTIVITY

Williams Company
Date

Nancy Kopay
123 Cedar Lane
Altoona, Kansas 66651

Dear Ms. Kopay:

Thank you for your prompt payment! I am very glad that you found the cost information helpful.

Thank you also for your questions about our overhead costs. We do try to provide our customers with as much information as possible, but we cannot give detailed information on overhead costs. The cost of providing such information is prohibitive.

You asked why we do not use actual overhead costs when we bill our customers. We estimate overhead costs, rather than use actual costs, for several reasons. One of the most important reasons for you is that we could not prepare bills in a timely manner if we had to use actual overhead. We would have to wait until we were billed for such things as electricity and telephone service. A second reason is that some costs we include in overhead are only payable once or twice a year, such as insurance and taxes. When we use an estimated rate, we are able to allow for those costs. A third reason is that some costs are fixed, which means that they stay the same in dollar amount from month to month. This category includes items such as rent. If we billed you based on our actual costs, you would be billed a higher amount if your work was done during a slow time (because we would have fewer jobs to spread the costs over). An estimated overhead rate allows us to level out these costs.

CT 2-4 (Continued)

I hope this answers some of your questions. I'm glad you are interested in our company and that you took the time to write. I am sending a copy of our annual report under separate cover. It contains some details on the information you asked about.

Thanks again for your letter and for having Williams make your new cabinets!

Sincerely,

Student

LO3 BT: C Difficulty: Easy TOT: 20 min. AACSB: Communication AICPA FC: Measurement, Reporting AICPA PC: Communication IMA: Cost Management, Reporting

CT 2-5 ETHICS CASE

(a) The stakeholders in this situation are:

- **Alice Reiley, controller for LRF Printing.**
- **The president of LRF Printing.**
- **The customers of LRF Printing.**
- **The competitors of LRF Printing.**

(b) Padding cost-plus contracts is both unethical and illegal. Alice is faced with an ethical dilemma. She will be in trouble with the president if she doesn't follow his directive, and she will be committing an unethical act if she does follow his instructions.

(c) Alice should continue to accurately account for cost-plus contracts and, if challenged by the president, she should say that she is doing her very best to charge each and every legitimate cost to the cost-plus contracts.

LO N/A BT: E Difficulty: Easy TOT: 15 min. AACSB: Ethics AICPA FC: Reporting AICPA PC: Professional Demeanor, Communication IMA: Business Applications

CT 2-6 ALL ABOUT YOU

(a) Your chances of success in small business are increased if you have the following characteristics: You are a self-starter, you get along with many different kinds of people, you are good at making decisions, you have physical and emotional stamina, you are well organized, you have a strong desire to succeed and you will receive family support during the start up phase.

(b) The top ten reasons why businesses fail as cited in the books Small Business Management by Michael Ames, and The Do it Yourself Business Book by Gustav Berle are:

1. **Lack of experience**
2. **Insufficient capital (money)**
3. **Poor location**
4. **Poor inventory management**
5. **Over-investment in fixed assets**
6. **Poor credit arrangements**
7. **Personal use of business funds**
8. **Unexpected growth**
9. **Competition**
10. **Low sales**

LO N/A BT: E Difficulty: Easy TOT: 15 min. AACSB: Technology AICPA FC: Reporting AICPA PC: Communication IMA: Reporting

CT 2-7 CONSIDERING YOUR COSTS AND BENEFITS

Discussion guide: The situation presented is a difficult one because you are presently receiving some help for free. It would seem that the best strategy is to price your services based on what it would cost you to do the landscape business without any free help. In the long run, it is going to be impossible to continue unless you can cover these costs. In addition, if you underprice your services today, your customers may expect your prices will remain as low in the future. That probably cannot happen, given that your costs will increase substantially after the first two years. However, we should note that it is not unusual to start a small business with some assets available to you. Then, as your business grows, you acquire additional assets to meet your needs. After all, you may need a low price to get started, and as you gain experience you will be able to charge more or become more efficient.

So what to do? Let's address your old truck first. You should treat the truck as an asset owned by your business. Record it on your books at its fair value, and depreciate it over a reasonable life. This will result in an overhead charge. You need to cover the cost of that truck, as you will have to buy another one someday. The land, barn, and your mother's services are a little more difficult. If you rented the land and barn and if you paid an assistant, all of these costs would be charged to overhead. (The assistant would be indirect labor.) You are currently getting all these services for free. This is a good situation now, and you may need this situation early in your business to help you get started. But you should recognize that even if you run your business profitably for the first two years, you may have problems beginning in the third year. Thus, it would seem prudent to establish a budget based on both scenarios for the first two years. If you can charge based on your expected costs in the future, do so. If that is not realistic, because you need to establish yourself and get more experience, then charge less. But be sure from the start to cover a reasonable amount of your costs, or the business does not make sense for you financially.

LO2, 3, 4 BT: E Difficulty: Moderate TOT: 25 min. AACSB: Reflective Thinking, Communication AICPA FC: Measurement, Reporting, AICPA PC: Communication IMA: Cost Management, Reporting

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

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

Multiple Choice

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