

## Chapter 2 How is Job Costing Used to Track Production Costs?

### True/False

1. A movie production company would likely use a job costing system to track revenues and costs.  
**True;** Section 1  
*Level: easy*
2. A process costing system is used by companies that make identical units of product in batches.  
**True;** Section 1  
*Level: easy*
3. Job cost sheets are used as a subsidiary ledger to the Raw Materials Inventory account.  
**False;** Section 2  
*Level: easy*
4. The journal entry for recording timesheet submissions by employees working on various jobs will include a debit to the Direct Labor account.  
**False;** Section 2  
*Level: medium*
5. When a manufacturing company purchases raw materials, the Raw Materials Inventory account is debited.  
**True;** Section 2  
*Level: medium*
6. When direct materials are transferred into production, the journal entry includes a debit to the Work in Process Inventory account.  
**True;** Section 2  
*Level: medium*
7. Underapplied overhead occurs when actual overhead costs are lower than overhead costs applied to jobs.  
**False;** Section 3  
*Level: medium*
8. Normal costing is preferred by most companies because it assigns actual overhead costs to jobs.  
**False;** Section 3  
*Level: easy*
9. The three most common allocation bases for establishing a predetermined overhead rate include direct labor hours, machine hours, and direct labor costs.  
**True;** Section 3  
*Level: easy*

10. The overhead costs applied to jobs using a predetermined overhead rate are recorded by debiting Work in Process Inventory and crediting Manufacturing Overhead.  
**True;** Section 3  
*Level: medium*
11. The predetermined overhead rate is calculated as the estimated activity in the allocation base divided by the estimated overhead costs.  
**False;** Section 3  
*Level: medium*
12. Underapplied manufacturing overhead results in a debit balance in the Manufacturing Overhead account.  
**True;** Section 3  
*Level: medium*
13. Service organizations often use a predetermined overhead rate similar to manufacturing companies.  
**True;** Section 4  
*Level: easy*
14. All account names for job costing systems in service organizations are the same as those used by manufacturing companies.  
**False;** Section 4  
*Level: easy*

### Multiple Choice

15. All of the following are examples of firms who would use job costing *except*:
  - a. An automobile repair business.
  - b. A custom sailboat builder.
  - c. An interior designing firm.
  - d. A sport drink manufacturing company.
  - e. None of the answer choices is correct.**d;** Section 1  
*Level: medium*
16. All of the following are reasons that managers track revenues and costs using a job costing system *except*:
  - a. Managers use the information to record product costs as period costs.
  - b. Managers want to know if individual jobs are profitable.
  - c. Managers compare actual costs with estimated costs throughout the project to identify unexpected changes as early as possible.
  - d. Managers assess the accuracy of original cost estimates.
  - e. None of the answer choices is correct.**a;** Section 1  
*Level: medium*

17. Process costing is best described by which statement?
- Only direct materials and manufacturing overhead are assigned to products under process costing.
  - Units produced in a process costing system are unique and are produced individually.
  - Product costs are tracked by department and assigned to products passing through each department.
  - There cannot be any beginning or ending Work in Process Inventory with process costing.
  - None of the answer choices is correct.

**c;** Section 1  
*Level: medium*

18. Which of the following companies would probably not use job order costing?
- A window washing service.
  - A milk manufacturer.
  - A car repair business.
  - An electrician.
  - None of the answer choices is correct.

**b;** Section 1  
*Level: medium*

19. All of the following are examples of firms who would use process costing *except*:
- A chewing gum manufacturer.
  - An ice cream manufacturer.
  - An oil refinery.
  - A plumbing contractor.
  - None of the answer choices is correct.

**d;** Section 1  
*Level: medium*

20. Which of the following is typically used as a subsidiary ledger for Work in Process in a job cost system?
- Job cost sheet.
  - Balance sheet.
  - Materials requisition.
  - Timesheet.
  - None of the answer choices is correct.

**a;** Section 2  
*Level: medium*

21. Adams Company placed \$2,000 of direct materials into production. Which one of the following journal entries should Jones record for this transaction?

- a. Raw Materials Inventory      2,000  
    Accounts Payable                      2,000
- b. Work in Process Inventory      2,000  
    Manufacturing Overhead              2,000
- c. Manufacturing Overhead      2,000  
    Raw Materials Inventory              2,000
- d. Work in Process Inventory      2,000  
    Raw Materials Inventory              2,000

e. None of the answer choices is correct.

**d**; Section 2

*Level: medium*

22. Burton Company purchased \$45,000 of raw materials on account. Which one of the following journal entries should Burton record for this transaction?

- a. Work in Process Inventory      45,000  
    Raw Materials Inventory              45,000
- b. Raw Materials Inventory      45,000  
    Accounts Payable                      45,000
- c. Work in Process Inventory      45,000  
    Accounts Payable                      45,000
- d. Accounts Payable              45,000  
    Raw Materials Inventory              45,000

e. None of the answer choices is correct.

**b**; Section 2

*Level: medium*

23. Records at Sandy Inc. indicate that indirect materials totaling \$800 were requisitioned and placed in production. Which one of the following journal entries should Sandy record for this transaction?

- a. Raw Materials Inventory      800  
    Work in Process Inventory              800
- b. Manufacturing Overhead      800  
    Raw Materials Inventory              800
- c. Raw Materials Inventory      800  
    Accounts Payable                      800
- d. Work in Process Inventory      800  
    Raw Materials Inventory              800

e. None of the answer choices is correct.

**b**; Section 2

*Level: medium*

24. Silo Manufacturing received timesheets submitted by employees reflecting \$5,000 of direct labor costs to be paid next week. Which one of the following journal entries should Silo record for this transaction?

- a. Work in Process Inventory      5,000  
    Wages Payable                              5,000
- b. Direct Labor                      5,000  
    Work in Process Inventory              5,000
- c. Wages Payable                      5,000  
    Work in Process Inventory              5,000
- d. Work in Process Inventory      5,000  
    Manufacturing Overhead                      5,000
- e. None of the answer choices is correct.

**a;** Section 2

*Level: medium*

25. The entry to record depreciation on the factory building should include a:

- a. debit to Work in Process Inventory.
- b. debit to Manufacturing Overhead.
- c. debit to Cost of Goods Sold.
- d. credit to Work in Process Inventory.
- e. None of the answer choices is correct.

**b;** Section 2

*Level: difficult*

26. Assume Clayton Company has an immaterial credit balance in the Manufacturing Overhead account. The entry to close the Manufacturing Overhead account should include a:

- a. credit to Finished Goods Inventory.
- b. credit to Work in Process Inventory.
- c. credit to Cost of Goods Sold.
- d. debit to Cost of Goods Sold.
- e. None of the answer choices is correct.

**c;** Section 2

*Level: difficult*

27. Specialty Chocolates recently expanded its operations beyond its existing kitchen to serve its retail operations by establishing a new kitchen to serve a wholesale market for local specialty shops. With this new arrangement, Specialty Chocolates will continue to have a retail shop attached to its original kitchen (Department 1) and the new wholesale operations shipping out of the new kitchen (Department 2). Using normal costing, the company applies monthly overhead using predetermined overhead rates based on direct labor hours for the older operation in Department 1 and machine hours for overhead rates in the more automated Department 2.

	<u>Department 1</u>	<u>Department 2</u>
Monthly estimated overhead allocated to each department	\$4,800	\$6,000
Overhead cost driver	direct labor hours	machine hours
Estimated number of direct labor hours per month	320	–
Estimated number of machine hours per month	–	500
Estimated direct labor hours per pound of chocolate	10 minutes	
Estimated machine hours per pound of chocolate		4 minutes

Given this information, what are the respective overhead application rates to be used per pound of chocolate for Departments 1 and 2?

- Department 1: \$1.50 per pound; Department 2: \$0.20 per pound.
- Department 1: \$0.25 per pound; Department 2: \$0.20 per pound.
- Department 1: \$2.50 per pound; Department 2: \$0.80 per pound.
- Department 1: \$0.25 per pound; Department 2: \$2.00 per pound.
- None of the answer choices is correct.

**c;** Section 3

*Level: difficult*

Department 1:	$\$4,800 \text{ estimated overhead} / (320 \text{ hrs} \times 60 \text{ min/hr}) = \$0.25 \text{ per minute};$ $\$0.25 \times 10 \text{ minutes} = \$2.50 \text{ per pound of chocolate}$
Department 2:	$\$6,000 \text{ estimated overhead} / (500 \text{ hrs} \times 60 \text{ min/hr}) = \$0.20 \text{ per minute};$ $\$0.20 \times 4 \text{ minutes} = \$0.80 \text{ per pound of chocolate}$

28. The entry to record wages owed to the production supervisor should include a debit to:
- Wages Payable.
  - Wages Expense.
  - Work in Process Inventory.
  - Manufacturing Overhead.
  - None of the answer choices is correct.

**d;** Section 3

*Level: difficult*

29. Nguyen Inc. applies overhead to products based on direct labor hours using normal costing. During 2016, total overhead costs were estimated to be \$500,000. Actual overhead totaled \$540,000 based on 32,000 actual direct labor hours. At the end of the year, overhead was overapplied by \$20,000. Based on this information, what was the predetermined overhead rate used during 2016?
- \$16.88 per direct labor hour.
  - \$16.25 per direct labor hour.
  - \$15.63 per direct labor hour.
  - \$17.50 per direct labor hour.
  - None of the answer choices is correct.

**d**; Section 3

*Level: difficult*

$\$540,000 \text{ actual overhead} + 20,000 \text{ overapplied} = \$560,000 \text{ overhead applied};$   
 $\$560,000 \text{ overhead applied} / 32,000 \text{ direct labor hours} = \$17.50 \text{ per direct labor hour}$

30. The law firm, Keen and Sholer, assigns overhead to clients based on direct labor hours using normal costing. During June, they compiled the following information regarding hours worked and costs:

Actual direct labor hours	900 hours
Actual overhead costs	\$7,200
Estimated direct labor hours	1,000 hours
Estimated overhead costs	\$9,000

The amount of applied overhead for June is:

- \$8,100
- \$7,200
- \$6,480
- \$9,000
- None of the answer choices is correct.

**a**; Section 3

*Level: difficult*

$\$9,000 \text{ estimated overhead costs} / 1,000 \text{ estimated direct labor hours} = \$9.00 \text{ per direct labor hour};$   
 $\$9.00 \text{ per direct labor hour} \times 900 \text{ actual direct labor hours} = \$8,100 \text{ applied}$

31. The law firm, Keen and Sholer, assigns overhead to clients based on direct labor hours using normal costing. During June, they compiled the following information regarding hours worked and costs:

Actual direct labor hours	900 hours
Actual overhead costs	\$7,200
Estimated direct labor hours	1,000 hours
Estimated overhead costs	\$9,000

For June, overhead was:

- a. \$720 overapplied.
- b. \$720 underapplied.
- c. \$900 underapplied.
- d. \$900 overapplied.
- e. None of the answer choices is correct.

**d**; Section 3

*Level: difficult*

$\$9,000$  estimated overhead costs /  $1,000$  direct labor hours =  $\$9.00$  per direct labor hour;  
 $\$9.00$  per direct labor hour  $\times$   $900$  actual direct labor hours =  $\$8,100$  applied;  
 $\$8,100$  applied –  $\$7,200$  actual =  $\$900$  overapplied

32. If the under- or overapplied overhead amount is considered to be material, which of the following accounts would be the *least* likely to be used when closing the Manufacturing Overhead account at the end of the period?
- a. Raw Materials Inventory.
  - b. Work in Process Inventory.
  - c. Finished Goods Inventory.
  - d. Cost of Goods Sold.
  - e. None of the answer choices is correct.

**a**; Section 3

*Level: difficult*

33. The entry to record the requisition of indirect materials in a job cost system includes a:
- a. debit to Work in Process Inventory.
  - b. debit to Manufacturing Overhead.
  - c. credit to Accounts Payable.
  - d. credit to Work in Process Inventory.
  - e. None of the answer choices is correct.

**b**; Section 3

*Level: medium*

34. When using a job cost system, which of the following will not appear on a job cost sheet?
- Direct labor.
  - Direct materials.
  - Actual manufacturing overhead incurred.
  - Manufacturing overhead applied.
  - None of the answer choices is correct.
- c**; Section 3  
*Level: medium*
35. If the Manufacturing Overhead account has a credit balance after overhead has been applied to products, manufacturing overhead:
- has been closed.
  - has been applied incorrectly.
  - is underapplied.
  - is overapplied.
  - None of the answer choices is correct.
- d**; Section 3  
*Level: difficult*
36. The Work in Process Inventory account for Baja Manufacturing Company shows a balance of \$7,200 at the end of the accounting period. The job cost sheets of the only two uncompleted jobs, Jobs 4 and 7, show respective charges of \$2,400 and \$1,200 for direct materials used. Jobs 4 and 7 also show respective charges of \$1,600 and \$800 for direct labor used. Based on this information, what is the predetermined overhead rate as a percentage of direct labor costs that Morris is using?
- 200%
  - 50%
  - 33.3%
  - 16.7%
  - None of the answer choices is correct.
- b**; Section 3  
*Level: difficult*

To find total overhead applied, take the total WIP Inventory balance and subtract direct materials and direct labor as follows:

$$\$7,200 - (\$2,400 + \$1,200) - (\$1,600 + \$800) = \$1,200 \text{ total overhead applied to both jobs;}$$

$$\text{Predetermined rate} = \text{cost applied} / \text{direct labor cost} = \$1,200 / (\$1,600 + \$800) = 50\%$$

37. Kaplan Inc. applies overhead on the basis of direct labor hours. During 2016, the predetermined overhead rate used was \$9.00. If overhead was underapplied by \$16,500 during 2016, which of the following would not be a reason for the underapplied overhead?
- Estimated direct labor hours differed from actual direct labor hours.
  - Applied overhead was lower than actual overhead.
  - Estimated overhead costs differed from actual overhead costs.
  - Applied overhead was higher than actual overhead.
  - None of the answer choices is correct.

**d;** Section 3

*Level: difficult*

38. All of the following are reasons that companies prefer normal costing *except*:
- Normal costing averages overhead costs and levels out overhead fluctuations that might occur from month to month.
  - Normal costing tracks actual direct materials, actual direct labor costs, and actual manufacturing overhead costs.
  - Normal costing simplifies recordkeeping.
  - Normal costing provides information for managers to quote customers the price of products based on estimated costs.
  - None of the answer choices is correct.

**b;** Section 3

*Level: medium*

39. Goodman Company has \$30,000 in underapplied overhead, which is considered by the company to be a material amount. Other account balances include:

Work in Process Inventory	\$140,000
Finished Goods Inventory	40,000
Cost of Goods Sold	20,000

Which one of the following would be the correct journal entry for closing the underapplied overhead?

- a. Work in Process Inventory 21,000  
Finished Goods Inventory 6,000  
Cost of Goods Sold 3,000  
Manufacturing Overhead 30,000
- b. Manufacturing Overhead 30,000  
Work in Process Inventory 21,000  
Finished Goods Inventory 6,000  
Cost of Goods Sold 3,000
- c. Manufacturing Overhead 30,000  
Work in Process Inventory 10,000  
Finished Goods Inventory 10,000  
Cost of Goods Sold 10,000
- d. Work in Process Inventory 10,000  
Finished Goods Inventory 10,000  
Cost of Goods Sold 10,000  
Manufacturing Overhead 30,000
- e. None of the answer choices is correct.

**a**; Section 3

*Level: difficult*

WIP apportionment =  $70\% \times 30,000 = \$21,000$ ;  
Finished Goods apportionment =  $20\% \times 30,000 = \$6,000$ ;  
COGS =  $10\% \times 30,000 = \$3,000$

40. All of the following are ways that a job costing system used by a service organization may differ from one used by a manufacturing company *except*:
- Costs in service organizations are typically tracked by customer rather than product.
  - Account names for service organizations are slightly different from those used by manufacturers.
  - Service organizations tend to use fewer materials.
  - The process of tracking labor for service organizations is completely different from the process used by manufacturers.
  - None of the answer choices is correct.

**d**; Section 4

*Level: easy*

41. Which of the following accounts would probably not be found in the Job Costing accounts of a service organization?
- Finished Goods.
  - Overhead.
  - Cost of Services.
  - Supplies Inventory.
  - None of the answer choices is correct.

**a**; Section 4

*Level: easy*

### Short Answer

42. For each of the following, identify which are likely to use job costing (J) and which are likely to use process costing (P).
- Firm that bottles sports drinks.
  - Electrician.
  - Landscape architect.
  - Auto repair shop.
  - Firm that manufactures liquid soap.
  - Butter processing plant.
  - Custom home builder.
  - Pet food manufacturer.
  - Plumber.
  - Heating and air-conditioning repair business.

ANS:

- a. P
- b. J
- c. J
- d. J
- e. P
- f. P
- g. J
- h. P
- i. J
- j. J

Section 1

*Level: medium*

43. Industrial Products Inc. expects to incur \$1,200,000 in manufacturing overhead costs this year. Industrial Products expects to use 15,000 direct labor hours at a cost of \$192,000 and a total of 80,000 machine hours. Management of Delgado would like to evaluate the cost of Job 12 using three different approaches to allocating overhead costs.

**Required:**

- (1) Prepare three separate predetermined overhead rates based on direct labor hours, direct labor cost and machine hours.
- (2) With each of the predetermined overhead rates for Industrial Products (calculated in Requirement 1), determine the cost of Job 12 using the following information:

Job 12:	Direct materials	\$3,000
	Direct labor	40 hours at \$16 per hour + 8 hours at \$35 per hour
	Machine time	150 hours

- (3) What are two reasons Industrial Products might prefer to use one of these three overhead allocation bases over the others?

ANS:

- (1) The predetermined overhead rate is calculated as follows:

$$\text{Predetermined overhead rate} = \frac{\text{Estimated overhead costs}}{\text{Estimated activity in allocation base}}$$

Using Direct Labor Hours:

$$\begin{aligned} &= \$1,200,000 \text{ estimated overhead costs} / 15,000 \text{ direct labor hours} \\ &= \$80.00 \text{ per direct labor hour} \end{aligned}$$

Using Direct Labor Costs:

$$\begin{aligned} &= \$1,200,000 \text{ estimated overhead costs} / \$192,000 \text{ direct labor dollars} \\ &= \$6.25 \text{ per direct labor dollar} \end{aligned}$$

Using Machine Hours:

$$\begin{aligned} &= \$1,200,000 \text{ estimated overhead costs} / 40,000 \text{ machine hours} \\ &= \$30.00 \text{ per machine hour} \end{aligned}$$

- (2) Three different cost calculations are required:

	<b>Direct Labor Hours</b>	<b>Direct Labor Cost</b>	<b>Machine Hours</b>
Direct materials	\$ 3,000	\$ 3,000	\$ 3,000
Direct labor	920	920	920
Manufacturing overhead	<u>3,840*</u>	<u>5,750**</u>	<u>4,500***</u>
Total cost of job #143	<u>\$7,760</u>	<u>\$9,670</u>	<u>\$8,420</u>

\* \$3,840 = \$80.00 rate × 48 direct labor hours

\*\* \$5,750 = \$6.25 rate × \$920 direct labor cost

\*\*\* \$4,500 = \$30.00 rate × 150 machine hours

- (3) One reason for using a particular allocation base for overhead is to get the most accurate costing approach possible as a result of using a base that best drives (or causes) the overhead costs. If Industrial Products has a production process that is highly dependent upon skilled laborers with relatively high labor pay rates, overhead costs are likely to be driven by direct labor cost. The more highly paid skilled laborers used, the higher the overhead costs incurred. Thus, there is a linkage between direct labor costs and overhead costs and using direct labor as an allocation base is preferable. Another reason for selecting a particular allocation base is to employ an allocation base that is relatively easy to measure. For example, if a process is driven by direct labor, these costs are generally easy to track, making implementation relatively simple.

Sections 2 and 3  
*Level: difficult*

44. Landscape Design Company incurred the following actual overhead costs for the month of March:

Indirect materials	\$175,000
Indirect labor	145,000
Factory depreciation	11,000
Factory utilities	6,000

Landscape Design applies overhead on a predetermined rate of \$1.90 per direct labor dollar and direct labor costs were \$151,000 for the month.

**Required:**

- (1) Prepare one journal entry to record actual overhead costs for the month of March. Assume indirect labor costs and utilities will be paid next month.
- (2) Prepare the journal entry to record manufacturing overhead applied to jobs during January.
- (3) Is manufacturing overhead overapplied or underapplied? Using the balance in the Manufacturing Overhead account result from entries (1) and (2) above, prepare the journal entry to close Manufacturing Overhead to Cost of Goods Sold.

ANS:

(1)	Manufacturing Overhead	337,000	
	Raw Materials Inventory		175,000
	Wages Payable		145,000
	Accumulated Depreciation, Factory		11,000
	Utilities Payable (or Accounts Payable)		6,000
(2)	Work in Process Inventory	286,900*	
	Manufacturing Overhead		286,900
(3)	Manufacturing Overhead has a debit balance of \$50,100 (= \$337,000 – \$286,900), and thus is underapplied. The entry to close Manufacturing Overhead is:		
	Cost of Goods Sold	50,100	
	Manufacturing Overhead		50,100

\*  $\$286,900 = \$1.90 \text{ rate} \times \$151,000 \text{ direct labor cost}$

### Section 3

*Level: difficult*

45. Auto Machinery makes automobile production equipment and uses normal costing. Overhead is applied on the basis of \$12 per machine hour. The following information relates to the August jobs:

	<b>Job 22</b>	<b>Job 33</b>	<b>Job 44</b>
Materials used	\$40,000	\$ 74,000	\$43,000
Direct labor	\$96,000	\$117,000	\$84,000
Machine hours	9,200	7,700	6,400

Jobs 22 and 33 were completed and sold, but Job 44 remained in inventory at the end of August. For August, actual overhead incurred totaled \$274,000.

**Required:**

- (1) Compute the amount of overhead to be applied to each job.
- (2) Compute Cost of Goods Sold for August and ending WIP Inventory at August 31.
- (3) Compute the amount of overapplied or underapplied overhead for August.
- (4) Assume that revenue for Jobs 22 and 33 amounted to \$1,090,000, selling expenses totaled \$218,000, general and administrative expenses were equal to \$98,000, and over- or underapplied overhead is immaterial. Using this information, prepare an income statement for the manufacturer for August.

ANS:

(1) Overhead application		<b>Job 22</b>	<b>Job 33</b>	<b>Job 44</b>
Machine hours	9,200	7,700	6,400	
Overhead applied @ \$12 per dlh	\$110,400	\$92,400	\$76,800	
(2) Cost of Goods Sold:				
Job 22 = \$40,000 + 96,000 + 110,400 =				\$246,400
Job 33 = \$74,000 + 117,000 + 92,400 =				<u>\$283,400</u>
				<u>\$529,800</u>
Ending Inventory:				
Job 44 = \$43,000 + 84,000 + 76,800 = \$203,800				
(3) Applied overhead (\$110,400 + 92,400 + 76,800) =				\$279,600
Overhead incurred				<u>274,000</u>
Overapplied overhead				<u>\$ 5,600</u>

(4)

<b>Auto Machinery Income Statement Month Ended August 31</b>		
Sales		\$1,090,000
Cost of Goods Sold before overapplied overhead	\$529,800	
Adjustment for overapplied overhead	<u>(5,600)</u>	
Cost of Goods Sold		<u>524,200</u>
Gross profit		565,800
Less operating (nonmanufacturing) expenses:		
Selling		218,000
General and administrative		<u>98,000</u>
Operating profit		<u><u>\$249,800</u></u>

Sections 3 and 5  
*Level: difficult*