

EXERCISE 5-14 Departmental Overhead Rates [LO2, LO3, LO4]

White Company has two departments, Cutting and Finishing. The company uses a job-order costing system and computes a predetermined overhead rate in each department. The Cutting Department bases its rate on machine-hours, and the Finishing Department bases its rate on direct labor cost. At the beginning of the year, the company made the following estimates:

	Department	
	Cutting	Finishing
Direct labor-hours	6,000	30,000
Machine-hours	48,000	5,000
Manufacturing overhead cost	\$360,000	\$486,000
Direct labor cost	\$50,000	\$270,000

Required:

1. Compute the predetermined overhead rate to be used in each department.
2. Assume that the overhead rates that you computed in (1) above are in effect. The job cost sheet for Job 203, which was started and completed during the year, showed the following:

	Department	
	Cutting	Finishing
Direct labor-hours	6	20
Machine-hours	80	4
Materials requisitioned	\$500	\$310
Direct labor cost	\$70	\$150

3. Compute the total overhead cost applied to Job 203.
Would you expect substantially different amounts of overhead cost to be assigned to some jobs if the company used a plantwide overhead rate based on direct labor cost, rather than using departmental rates? Explain. No computations are necessary.

PROBLEM 5-23 Multiple Departments; Applying Overhead [LO3, LO4, LO5]

High Desert Potteryworks makes a variety of pottery products that it sells to retailers such as Home Depot. The company uses a job-order costing system in which predetermined overhead rates are used to apply manufacturing overhead cost to jobs. The predetermined overhead rate in the Molding Department is based on machine-hours, and the rate in the Painting Department is based on direct labor cost. At the beginning of the year, the company's management made the following estimates:

	Department	
	Molding	Painting
Direct labor-hours	12,000	60,000
Machine-hours	70,000	8,000
Direct materials cost	\$510,000	\$650,000
Direct labor cost	\$130,000	\$420,000
Manufacturing overhead cost	\$602,000	\$735,000

The following information pertains to Job 205, which was started on August 1 and completed on August 10.

	Department	
	Molding	Painting
Direct labor-hours	30	85
Machine-hours	110	20
Materials placed into production	\$470	\$332
Direct labor cost	\$290	\$680

Systems Design: Job-Order Costing

Required:

1. Compute the predetermined overhead rate used during the year in the Molding Department. Compute the rate used in the Painting Department.
2. Compute the total overhead cost applied to Job 205.
3. What would be the total cost recorded for Job 205? If the job contained 50 units, what would be the unit product cost?
4. At the end of the year, the records of High Desert Potteryworks revealed the following *actual* cost and operating data for all jobs worked on during the year:

	Department	
	Molding	Painting
Direct labor-hours	10,000	62,000
Machine-hours	65,000	9,000
Direct materials cost	\$430,000	\$680,000
Direct labor cost	\$108,000	\$436,000
Manufacturing overhead cost	\$570,000	\$750,000

What was the amount of underapplied or overapplied overhead in each department at the end of the year?

EXERCISE 5A-2 Overhead Rates and Capacity Issues [LO3, LO4, LO5, LO8]

Security Pension Services helps clients to set up and administer pension plans that are in compliance with tax laws and regulatory requirements. The firm uses a job-order costing system in which overhead is applied to clients' accounts on the basis of professional staff hours charged to the accounts. Data concerning two recent years appear below:

	2008	2009
Estimated professional staff hours to be charged to clients' accounts	4,600	4,500
Estimated overhead cost	\$310,500	\$310,500
Professional staff hours available	6,000	6,000

"Professional staff hours available" is a measure of the capacity of the firm. Any hours available that are not charged to clients' accounts represent unused capacity. All of the firm's overhead is fixed.

Required:

1. Marta Brinksi is an established client whose pension plan was set up many years ago. In both 2008 and 2009, only 2.5 hours of professional staff time were charged to Ms. Brinksi's account. If the company bases its predetermined overhead rate on the estimated overhead cost and the estimated professional staff hours to be charged to clients, how much overhead cost would have been applied to Ms. Brinksi's account in 2008? In 2009?
2. Suppose that the company bases its predetermined overhead rate on the estimated overhead cost and the estimated professional staff hours to be charged to clients as in (1) above. Also suppose that the actual professional staff hours charged to clients' accounts and the actual overhead costs turn out to be exactly as estimated in both years. By how much would the overhead be underapplied or overapplied in 2008? In 2009?
3. Refer back to the data concerning Ms. Brinksi in (1) above. If the company bases its predetermined overhead rate on the *professional staff hours available*, how much overhead cost would have been applied to Ms. Brinksi's account in 2008? In 2009?
4. Suppose that the company bases its predetermined overhead rate on the professional staff hours available as in (3) above. Also suppose that the actual professional staff hours charged to clients' accounts and the actual overhead costs turn out to be exactly as estimated in both years. By how much would the overhead be underapplied or overapplied in 2008? In 2009?

PROBLEM 6-18 Variable Costing Income Statements; Sales Constant, Production Varies;
Lean Production [LO1, LO2, LO3, LO4]

"This makes no sense at all," said Bill Sharp, president of Essex Company. "We sold the same number of units this year as we did last year, yet our profits have more than doubled. Who made the goof—the computer or the people who operate it?" The statements to which Mr. Sharp was referring are shown below (absorption costing basis):

	Year 1	Year 2
Sales (20,000 units each year)	\$700,000	\$700,000
Cost of goods sold	<u>460,000</u>	<u>400,000</u>
Gross margin	240,000	300,000
Selling and administrative expenses	<u>200,000</u>	<u>200,000</u>
Net operating income	<u>\$ 40,000</u>	<u>\$100,000</u>

The statements above show the results of the first two years of operation. In the first year, the company produced and sold 20,000 units; in the second year, the company again sold 20,000 units, but it increased production as shown below:

	Year 1	Year 2
Production in units	20,000	25,000
Sales in units	20,000	20,000
Variable manufacturing cost per unit produced	\$8	\$8
Variable selling and administrative expense per unit sold	\$1	\$1
Fixed manufacturing overhead costs (total)	\$300,000	\$300,000

Essex Company applies fixed manufacturing overhead costs to its only product on the basis of *each year's production*. Thus, a new fixed manufacturing overhead rate is computed each year.

Required:

1. Compute the unit product cost for each year under:
 - a. Absorption costing.
 - b. Variable costing.
2. Prepare a contribution format variable costing income statement for each year.
3. Reconcile the variable costing and absorption costing net operating income figures for each year.
4. Explain to the president why, under absorption costing, the net operating income for Year 2 was higher than the net operating income for Year 1, although the same number of units was sold in each year.
5.
 - a. Explain how operations would have differed in Year 2 if the company had been using Lean Production and ending inventories had been eliminated.
 - b. If Lean Production had been used during Year 2, what would the company's net operating income have been under absorption costing? Explain the reason for any difference between this income figure and the figure reported by the company in the statements above.

EXERCISE 7-15 Calculating and Interpreting Activity-Based Costing Data [LO3, LO4]

Hiram's Lakeside is a popular restaurant located on Lake Washington in Seattle. The owner of the restaurant has been trying to better understand costs at the restaurant and has hired a student intern to conduct an activity-based costing study. The intern, in consultation with the owner, identified three major activities and then completed the first-stage allocations of costs to the activity cost pools. The results appear below.

Activity Cost Pool	Activity Measure	Total Cost	Total Activity
Serving a party of diners	Number of parties served	\$33,000	6,000 parties
Serving a diner	Number of diners served	\$138,000	15,000 diners
Serving drinks.....	Number of drinks ordered	\$24,000	10,000 drinks

The above costs include all of the costs of the restaurant except for organization-sustaining costs such as rent, property taxes, and top-management salaries.

A group of diners who ask to sit at the same table are counted as a party. Some costs, such as the costs of cleaning linen, are the same whether one person is at a table or the table is full. Other costs, such as washing dishes, depend on the number of diners served.

Prior to the activity-based costing study, the owner knew very little about the costs of the restaurant. She knew that the total cost for the month (including organization-sustaining costs) was \$240,000 and that 15,000 diners had been served. Therefore, the average cost per diner was \$16.

Required:

1. According to the activity-based costing system, what is the total cost of serving each of the following parties of diners?
 - a. A party of four diners who order three drinks in total.
 - b. A party of two diners who do not order any drinks.
 - c. A lone diner who orders two drinks.
2. Convert the total costs you computed in (1) above to costs per diner. In other words, what is the average cost per diner for serving each of the following parties?
 - a. A party of four diners who order three drinks in total.
 - b. A party of two diners who do not order any drinks.
 - c. A lone diner who orders two drinks.
3. Why do the costs per diner for the three different parties differ from each other and from the overall average cost of \$16 per diner?