

ESERCIZI

1 PREDETERMINED OVERHEAD RATE, OVERHEAD APPLICATION

At the beginning of the year, Kreskin Company estimated the following costs:

Overhead	\$450,000
Direct labor cost	600,000

Kreskin uses normal costing and applies overhead on the basis of direct labor cost. (Direct labor cost is equal to total direct labor hours worked multiplied by the wage rate.) For the month of December, direct labor cost was \$38,900.

Required:

1. Calculate the predetermined overhead rate for the year.
2. Calculate the overhead applied to production in December.

2 OVERHEAD VARIANCE (OVER-OR UNDERAPPLIED), CLOSING TO COST OF GOODS SOLD

At the end of the year, Kreskin Company provided the following actual information:

Overhead	\$456,500
Direct labor cost	607,200

Kreskin uses normal costing and applies overhead at the rate of 75 percent of direct labor cost. At the end of the year, Cost of Goods Sold (before adjusting for any overhead variance) was \$890,000.

Required:

1. Calculate the overhead variance for the year.
2. Dispose of the overhead variance by adjusting Cost of Goods Sold.

3 PREPARE JOB-ORDER COST SHEETS, PREDETERMINED OVERHEAD RATE, ENDING BALANCE OF WIP, FINISHED GOODS, AND COGS

At the beginning of June, Donegal Company had two jobs in process, Job 44 and Job 45, with the following accumulated cost information:

	Job 44	Job 45
Direct materials	\$4,600	\$ 500
Direct labor	1,200	1,000
Applied overhead	750	1,300
Balance, June 1	\$6,550	\$2,800

During June, two more jobs (46 and 47) were started. The following direct materials and direct labor costs were added to the four jobs during the month of June:

	Job 44	Job 45	Job 46	Job 47
Direct materials	\$1,500	\$6,110	\$800	\$700
Direct Labor	1,000	2,400	2,000	600

At the end of June, Jobs 44, 45, and 47 were completed. Only Job 45 was sold. On June 1, the balance in Finished Goods was zero.

Required:

1. Calculate the overhead rate based on direct labor cost.
2. Prepare a brief job-order cost sheet for the four jobs. Show the balance as of June 1 as well as direct materials and direct labor added in June. Apply overhead to the four jobs for the month of June, and show the ending balances.
3. Calculate the ending balances of Work in Process and Finished Goods as of June 30.
4. Calculate the Cost of Goods Sold for June.

4 ASSIGNING SUPPORT DEPARTMENT COSTS BY USING THE DIRECT METHOD

Vanderber Company manufactures a product in a factory that has two producing departments, Cutting and Sewing, and two support departments, S1 and S2. The activity driver for S1 is number of employees, and the activity driver for S2 is number of maintenance hours. The following data pertain to Vanderber Company:

	Support Departments		Producing Departments	
	S1	S2	Cutting	Sewing
Direct costs	\$180,000	\$150,000	\$122,000	\$90,500
Normal activity:				
Number of employees	—	3	63	147
Maintenance hours	1,200	0	16,000	4,000

Required:

1. Calculate the cost assignment ratios to be used under the direct method for Departments S1 and S2. (Each support department will have two ratios—one for Cutting and the other for Sewing.)
2. Allocate the support department costs to the producing departments by using the direct method.

5 SEQUENTIAL METHOD

Lanoka Company manufactures pottery in two producing departments: Shaping and Firing. Three support departments support the following production departments: Power, General Factory, and Human Resources. Budgeted data on the five departments are as follows:

	Support Departments			Producing Departments	
	Power	General		Shaping	Firing
		Factory	Human Resources		
Direct overhead costs	\$90,000	\$167,000	\$84,000	\$75,000	\$234,000
Kilowatt-hours	—	13,000	25,000	30,000	70,000
Square feet	2,000	—	6,000	24,000	8,000
Direct labor hours	—	—	—	4,000	6,000

Power is allocated on the basis of kilowatt-hours, general factory is allocated on the basis of square footage, and human resources is allocated on the basis of direct labor hours. The company does not break overhead into fixed and variable components.

Required:

1. Calculate the cost assignment ratios to be used under the sequential method for power and general factory.
2. Allocate the overhead costs to the producing departments by using the sequential method.

6 JOB-ORDER COSTING VERSUS PROCESS COSTING

- a. Auto manufacturing
- b. Dental services
- c. Auto repair
- d. Costume making

Required:

For each of the given types of industries, give an example of a firm that would use job- order costing. Then, give an example of a firm that would use process costing.

7 CALCULATING DEPARTMENTAL OVERHEAD RATES AND APPLYING OVERHEAD TO PRODUCTION

At the beginning of the year, Videosym Company estimated the following:

	Assembly Department	Testing Department	Total
Overhead	\$620,000	\$180,000	\$800,000
Direct labor hours	155,000	20,000	175,000
Machine hours	80,000	120,000	200,000

Video sym uses departmental overhead rates. In the assembly department, overhead is applied on the basis of direct labor hours. In the testing department, overhead is applied on the basis of machine hours. Actual data for the month of March are as follows:

	Assembly Department	Testing Department	Total
Overhead	53,000	15,500	68,500
Direct labor hours	13,000	1,680	14,680
Machine hours	6,800	13,050	19,850

Required:

1. Calculate the predetermined overhead rates for the assembly and testing departments.
2. Calculate the overhead applied to production in each department for the month of March.
3. By how much has each department's overhead been overapplied? Underapplied?

8 APPLYING OVERHEAD TO JOBS, COSTING JOBS

Perrine Company builds internal conveyor equipment to client specifications. On October 1, Job 877 was in process with a cost of \$20,520 to date.

During October, Jobs 878, 879, and 880 were started. Data on costs added during October for all jobs are as follows:

	Job 877	Job 878	Job 879	Job 880
Direct materials	\$13,960	\$ 7,000	\$ 350	\$4,800
Direct labor	13,800	10,000	1,500	4,000

Overhead is applied to production at the rate of 85 percent of direct labor cost. Job 878 was completed on October 28, and the client was billed at cost plus 50 percent. All other jobs remained in process.

Required:

1. Prepare a brief job-order cost sheet showing the October 1 balances of all four jobs, plus the direct materials and direct labor costs during October. (There is no need to calculate applied overhead at this point or to total the costs.)
2. Calculate the overhead applied during October.
3. Calculate the balance in Work in Process on October 31.
4. What is the price of Job 878?

9 JOB-ORDER COST SHEETS, BALANCE IN WORK IN PROCESS AND FINISHED GOODS

Berne Company, a job-order costing firm, worked on three jobs in July. Data are as follows:

Balance, 7/1	\$8,450	\$0	\$0
Direct materials	\$7,450	\$12,300	\$16,150
Direct labor	\$12,000	\$10,500	\$23,000
Machine hours	400	350	1,000

Overhead is applied to jobs at the rate of \$20 per machine hour. By July 31, Jobs 73 and 75 were completed. Jobs 70 and 73 were sold. Job 74 remained in process. On July 1, the balance in Finished Goods was \$49,000 (consisting of Job 70 for \$19,000 and Job 72 for \$30,000).

Berne prices its jobs at cost plus 30 percent. During July, variable marketing expenses were 10 percent of sales, and fixed marketing expenses were \$2,000; administrative expenses were \$4,800.

Required:

1. Prepare job-order cost sheets for all jobs in process during July, showing all costs through July 31.
2. Calculate the balance in Work in Process on July 31.
3. Calculate the balance in Finished Goods on July 31.
4. Calculate Cost of Goods Sold for July.
5. Prepare an income statement for Berne Company for the month of July.

10 JOB COST FLOWS

Ionia Company uses a normal job-order costing system. The company has two departments through which most jobs pass. Overhead is applied using a plantwide overhead rate of \$12 per direct labor hour. During the year, several jobs were completed. Data pertaining to one such job, Job 9-601, follow:

Direct materials	\$18,000	
Direct labor cost:		
Department A (6,000 hours @ \$6)	\$36,000	
Department B (1,000 hours @ \$6)	\$6,000	
	Machine hours used:	
	Department A	100
	Department B	1,200
	Units produced	10,000

Required:

1. Compute the total cost of Job 9-601.
2. Compute the per-unit manufacturing cost for Job 9-601.

For Requirements 3 and 4, assume that Ionia uses departmental overhead rates. In Department A, overhead is applied at the rate of \$3 per direct labor hour. In Department B, overhead is applied at the rate of \$7 per machine hour.

3. Compute the total cost of Job 9-601
4. Compute the per-unit manufacturing cost for job 9-601

-
3. Compute the total cost of Job 9-601.
 4. Compute the per-unit manufacturing cost for Job 9-601.

11 JOURNAL ENTRIES

Garrity, Inc. uses a job-order costing system. During the month of May, the following transactions occurred:

- a. Purchased materials on account for \$27,800.
- b. Requisitioned materials totaling \$21,000 for use in production. Of the total \$9,300 was for Job 58, \$6,900 for Job 59, and the remainder for Job 60.
- c. Incurred direct labor for the month of \$27,000, with an average wage of \$15 per hour. Job 58 used 800 hours; Job 59, 600 hours; and Job 60, 400 hours.
- d. Incurred and paid actual overhead of \$15,500 (credit Various Payables).
- e. Charged overhead to production at the rate of \$7.50 per direct labor hour.
- f. Completed and transferred Jobs 58 and 59 to Finished Goods.
- g. Sold Job 57 (see beginning balance of Finished Goods) and Job 58 to their respective clients on account for a price of cost plus 40 percent.

Beginning balances as of May 1 were:

Materials \$5,170

Work in Process 0

Finished Goods (Job 58) 31,400

Required:

1. Prepare the journal entries for transactions (a) through (g). Prepare brief job-order cost sheets for Jobs 58, 59, and 60.
2. Calculate the ending balance of Raw Materials.
3. Calculate the ending balance of Work in Process.
4. Calculate the ending balance of Finished Goods.

12 DIRECT METHOD OF SUPPORT DEPARTMENT COST ALLOCATION

Dexter Company is divided into two operating divisions: Battery and Small Motors. The company allocates

power and human resources costs to each operating division using the direct method. Power costs are allocated on the basis of the number of machine hours and human resources costs on the basis of the number of employees. Support department cost allocations using the direct method are based on the following data:

	Support Departments		Operating Divisions	
	Human		Small	
	Power	Resources	Battery	Motors
Overhead costs	\$100,000	\$205,000	\$180,000	\$93,500
Machine hours	2,000	2,000	5,000	3,000
Number of employees	20	30	20	60
Direct labor hours	15,000		80,000	

Required:

1. Calculate the allocation ratios for Power and Human Resources. (Carry these calculations out to three significant digits.)
2. Allocate the support service costs to the producing departments.
3. Assume departmental overhead rates are based on direct labor hours. Calculate the overhead rate for the Battery Division and for the Small Motors Division. (Round overhead rates to the nearest cent.)

13 JOB COST, SOURCE DOCUMENTS

Spade Millhone Detective Agency performs investigative work for a variety of clients. Recently, Alban Insurance Company asked Spade Millhone to investigate a series of suspicious claims for whiplash. In each case, the claimant was driving on a freeway and was suddenly rear-ended by an Alban-insured client. The claimants were all driving old, uninsured automobiles. The Alban clients reported that the claimants suddenly changed lanes in front of them, and the accidents were unavoidable. Alban suspected that these “accidents” were the result of insurance fraud. Basically, the claimants cruised the freeways in virtually worthless cars, attempting to cut in front of expensive late-model cars that would surely be insured. Alban believed that the injuries were faked.

Rex Spade spent 37 hours shadowing the claimants and taking pictures as necessary. His surveillance methods located the office of a doctor used by all claimants. He also took pictures of claimants performing tasks that they had sworn were now impossible to perform due to whiplash injuries. Victoria Millhone spent 48 hours using the Internet to research court records in surrounding states to locate the names of the claimants and their doctor. She found a pattern of similar insurance claims for each of the claimants.

Spade Millhone Detective Agency bills clients for detective time at \$120 per hour. Mileage is charged at \$0.50 per mile. The agency logged in 510 miles on the Alban job. The film and developing amounted to \$120.

Required:

1. Prepare a job-order cost sheet for the Alban job.
2. Why is overhead not specified in the charges? How does Spade Millhone charge clients for the use of overhead (e.g., the ongoing costs of their office—supplies, paper for notes and reports, telephone, utilities)?
3. The mileage is tallied from a source document. Design a source document for this use, and make up data for it that would total the 510 miles driven on the Alban job.

14 CALCULATING ENDING WORK IN PROCESS, INCOME STATEMENT

Uehler Prosthetics Company produces artificial limbs for individuals. Each prosthetic is unique. On January 1, three jobs, identified by the name of the person being fitted with the prosthetic, were in process with the following costs:

	Asher	Asher	Wollner
Direct materials	\$100	\$340	\$ 780

Direct labor During the month of January, two more jobs were started, Johns and Burton. Materials and labor costs incurred by each job in January are as follows:

		Materials	Direct Labor
350			
700	Asher	\$ 600	\$ 300
1,050	Styne	550	200
Applied overhead	Wollner	860	250
280	Johns	1,310	1,650
560	Burton	260	180
840			
Total			
\$730			
\$1,600			
\$2,670			

Wollner and Johns' prosthetics were completed and sold by January 31.

Required:

- 1 If overhead is applied on the basis of direct labor dollars, what is the overhead rate?
- 2 Prepare simple job-order cost sheets for each of the five jobs in process during January.
- 3 What is the ending balance of Work in Process on January 31? What is the Cost of Goods Sold in January?
- 4 Suppose that Uehler Prosthetics Company prices its jobs at cost plus 20 percent. In addition, during January, marketing and administrative costs of \$850 were incurred. Prepare an income statement for the month of January.

15 OVERHEAD APPLIED TO JOBS, DEPARTMENTAL OVERHEAD RATES

Watson Products Inc. uses a normal job-order costing system. Currently, a plantwide overhead rate based on machine hours is used. Marlon Burke, the plant manager, has heard that departmental overhead rates can offer significantly better cost assignments than a plantwide rate can offer. Watson has the following data for its two departments for the coming year:

	Department A	Department B
Overhead costs (expected)	\$50,000	\$22,000
Normal activity (machine hours)	20,000	16,000

Required:

1. Compute a predetermined overhead rate for the plant as a whole based on machine hours.
2. Compute predetermined overhead rates for each department using machine hours. (Carry your calculations out to three decimal places.)
3. Job 73 used 20 machine hours from Department A and 50 machine hours from Department B. Job 74 used 50 machine hours from Department A and 20 machine hours from Department B. Compute the overhead cost assigned to each job using the plantwide rate computed in Requirement 1. Repeat the computation using the departmental rates found in Requirement 2. Which of the two approaches gives the fairer assignment? Why?
4. Repeat Requirement 3, assuming the expected overhead cost for Department B is \$40,000 (not \$22,000). For this company, would you recommend departmental rates over a plantwide rate?

16 OVERHEAD RATES, UNIT COSTS

Xanning Company manufactures specialty tools to customer order. There are three producing departments. Departmental information on budgeted overhead and various activity measures for the coming year is as follows:

Welding Assembly Finishing

Estimated overhead	\$200,000	\$22,000	\$250,000
Direct labor hours	4,500	10,000	6,000
Direct labor cost	\$90,000	\$150,000	\$120,000
Machine hours	5,000	1,000	2,000

Currently, overhead is applied on the basis of machine hours using a plantwide rate. However, Janine, the controller, has been wondering whether it might be worthwhile to use departmental overhead rates. She has analyzed the overhead costs and drivers for the various departments and decided that Welding and Finishing should base their overhead rates on machine hours and that Assembly should base its overhead rate on direct labor hours.

Janine has been asked to prepare bids for two jobs with the following information:

	Job 1	Job 2
Direct materials	\$4,500	\$8,600
Direct labor cost	\$1,000	\$2,000
Direct labor hours:		
Welding	10	20
Assembly	60	20
Finishing	30	80
Number of machine hours:		
Welding	50	30
Assembly	40	5
Finishing	110	165

The typical bid price includes a 30 percent markup over full manufacturing cost.

Required:

1. Calculate a plantwide rate for Xanning Company based on machine hours. What is the bid price of each job using this rate?
2. Calculate departmental overhead rates for the producing departments. What is the bid price of each job using these rates? (Round all answers to the nearest dollar.)

17 CALCULATE JOB COST AND USE IT TO CALCULATE PRICE

Suppose that back in the 1970s, Steve was asked to build speakers for two friends. The first friend, Jan, needed a speaker for her band. The second friend, Ed, needed a speaker built into the back of his hatchback automobile.

Steve figured the following costs for each:

	Jan's Job	Ed's Job
Materials	\$50	\$75
Labor hours	10	20

Steve knew that Jan's job would be easier, since he had experience in building the type of speaker she needed. Her job would not require any special equipment or specialized fitting. Ed's job, on the other hand, required specialized design and precise fitting. Steve thought he might need to build a mock-up of the speaker first, to fit it into the space. In addition, he might have to add to his tool collection to complete the

job. Normally, Steve figured a wage rate of \$6 per hour and charged 20 percent of labor and materials as an overhead rate.

Required:

- 1 Prepare job-order cost sheets for the two jobs, showing total cost.
- 2 Which cost do you think is more likely to be accurate? How might Steve build in some of the uncertainty of Ed's job into a budgeted cost?

18 UNIT COST, ENDING WORK IN PROCESS, JOURNAL ENTRIES

During August, Pamell Inc. worked on two jobs. Data relating to these two jobs follow:

	Job 64	Job 65
Units in each order	50	100
Units sold	50	—
Materials requisitioned	\$1,240	\$985
Direct labor hours	410	583
Direct labor cost	\$6,150	\$8,745

Overhead is assigned on the basis of direct labor hours at a rate of \$12. During August, Job 64 was completed and transferred to Finished Goods. Job 65 was the only unfinished job at the end of the month.

Required:

- 1 Calculate the per-unit cost of Job 64.
- 2 Compute the ending balance in the work-in-process account.
- 3 Prepare the journal entries reflecting the completion and sale on account of Job 64. The selling price is 160 percent of cost.

19 JOURNAL ENTRIES, JOB COSTS

The following transactions occurred during the month of April for Kearney Company:

- a. Purchased materials costing \$3,000 on account.
- b. Requisitioned materials totaling \$1,700 for use in production, \$500 for Job 443 and the remainder for Job 444.
- c. Recorded 50 hours of direct labor on Job 443 and 100 hours on Job 444 for the month. Direct laborers are paid at the rate of \$8 per hour.
- d. Applied overhead using a plantwide rate of \$7.50 per direct labor hour.
- e. Incurred and paid in cash actual overhead for the month of \$1,230.
- f. Completed and transferred Job 443 to Finished Goods.
- g. Sold on account Job 442, which had been completed and transferred to Finished Goods in March, for cost (\$2,000) plus 25 percent.

Required:

- 1 Prepare journal entries for transactions (a) through (e).
- 2 Prepare job-order cost sheets for Jobs 443 and 444. Prepare journal entries for transactions (f) and (g).
- 3 Prepare a statement of cost of goods manufactured for April. Assume that the beginning balance in the raw materials account was \$1,400 and that the beginning balance in the work-in-process account was zero.

20 PREDETERMINED OVERHEAD RATES, VARIANCES, COST FLOWS

Barrymore Costume Company, located in New York City, sews costumes for plays and musicals. Barrymore considers itself primarily a service firm, as it never produces costumes without a pre-existing order and only

purchases materials to the specifications of the particular job. Any finished goods ending inventory is temporary and is zeroed out as soon as the show producer pays for the order. Overhead is applied on the basis of direct labor cost. During the first quarter of the year, the following activity took place in each of the accounts listed:

Work in Process		Finished Goods			
Bal. DL	17,000	Complete	Bal. 40,000	Sold	210,000
	80,000	245,000	Complete 245,000		
	140,000				
	40,000				
OH DM			Bal.		
				75,000	
Bal.	32,000			Cost of Goods Sold	
	Overhead				
	138,500		140,000	210,000	
		Bal.	1,500		

Required:

- 1 Assuming that overhead is applied on the basis of direct labor cost, what was the overhead rate used during the first quarter of the year?
- 2 What was the applied overhead for the first quarter? The actual overhead? The under- or overapplied overhead?
- 3 What was the cost of the goods manufactured for the quarter?
- 4 Assume that the overhead variance is closed to the cost of goods sold account. Prepare the journal entry to close out the overhead control account. What is the adjusted balance in Cost of Goods Sold?
- 5 For Job 32, identify the costs incurred for direct materials, direct labor, and overhead.

21 OVERHEAD APPLICATION, JOURNAL ENTRIES, JOB COST

At the beginning of the year, Paxton Company budgeted overhead of \$180,000 as well as 15,000 direct labor hours. During the year, Job K456 was completed with the following information: direct materials cost, \$2,340; direct labor cost, \$3,600. The average wage for Paxton Company employees is \$10 per hour.

By the end of the year, 15,400 direct labor hours had actually been worked, and Pax-ton Company incurred the following actual overhead costs for the year:

Equipment lease	\$ 5,000
Depreciation on building	20,000
Indirect labor	100,000
Utilities	15,000
Other overhead	45,000

Required:

- 1 Calculate the overhead rate for the year.

- 2 Calculate the total cost of Job K456.
- 3 Prepare the journal entries to record actual overhead and to apply overhead to production for the year.
- 4 Is overhead over-applied or under-applied? By how much?
- 5 Assuming that the normal cost of goods sold for the year is \$700,000, what is the adjusted cost of goods sold?

22 JOURNAL ENTRIES, T-ACCOUNTS

Lowder Inc. builds custom conveyor systems for warehouses and distribution centers. During the month of July, the following occurred:

- a. Purchased materials on account for \$42,630.
- b. Requisitioned materials totaling \$27,000 for use in production: \$12,500 for Job 703 and the remainder for Job 704.
- c. Recorded direct labor payroll for the month of \$26,320 with an average wage of \$14 per hour. Job 703 required 780 direct labor hours; Job 704 required 1,100 direct labor hours.
- d. Incurred and paid actual overhead of \$19,950.
- e. Charged overhead to production at the rate of \$10 per direct labor hour.
- f. Completed Job 703 and transferred it to finished goods.
- g. Kept Job 704, which was started during July, in process at the end of the month.
- h. Sold Job 700, which had been completed in May, on account for cost plus 30 percent.

Beginning balances as of July 1 were:

Raw Materials	\$ 6,070
Work in Process (for Job 703)	10,000
Finished Goods (for Job 700)	6,240

Required:

- 1 Prepare the journal entries for events (a) through (e).
- 2 Prepare simple job-order cost sheets for Jobs 703 and 704.
- 3 Prepare the journal entries for events (f) and (h).
- 4 Calculate the ending balances of the following:
 - a. Raw Materials
 - b. Work in Process
 - c. Finished Goods

23 SUPPORT DEPARTMENT COST ALLOCATION

MedServices Inc. is divided into two operating departments: Laboratory and Tissue Pathology. The company allocates delivery and accounting costs to each operating department. Delivery costs include the costs of a fleet of vans and drivers that drive throughout the state each day to clinics and doctors' offices to pick up samples and deliver them to the centrally located laboratory and tissue pathology offices. Delivery costs are allocated on the basis of number of samples. Accounting costs are allocated on the basis of the number of transactions processed. No effort is made to separate fixed and variable costs; however, only budgeted costs are allocated. Allocations for the coming year are based on the following data:

	Support Departments		Producing Departments	
	Delivery	Accounting	Laboratory	Pathology
Overhead costs	\$240,000	\$270,000	\$345,000	\$456,000
Number of samples	—	—	70,200	46,800
Transactions processed	2,000	200	24,700	13,300

Required:

1. Assign the support department costs by using the direct method.
2. Assign the support department costs by using the sequential method.

24 SUPPORT DEPARTMENT COST ALLOCATION: COMPARISON OF METHODS OF ALLOCATION

Bender Automotive Works Inc. manufactures a variety of front-end assemblies for automobiles. A front-end assembly is the unified front of an automobile that includes the headlamps, fender, and surrounding metal/plastic. Bender has two producing departments: Drilling and Assembly. Usually, the front-end assemblies are ordered in batches of 100.

Two support departments provide support for Bender's operating units: Maintenance and Power. Budgeted data for the coming quarter follow. The company does not separate fixed and variable costs.

	Support Departments		Producing Departments	
	Maintenance	Power	Drilling	Assembly
Overhead costs	\$320,000	\$400,000	\$163,000	\$90,000
Machine hours	—	22,500	30,000	7,500
Kilowatt-hours	40,000	—	36,000	324,000
Direct labor hours	5,000	40,000		

The predetermined overhead rate for Drilling is computed on the basis of machine hours; direct labor hours are used for Assembly.

Recently, a truck manufacturer requested a bid on a three-year contract that would supply front-end assemblies to a nearby factory. The prime costs for a batch of 100 front-end assemblies are \$1,817. It takes two machine hours to produce a batch in the drilling department and 50 direct labor hours to assemble the 100 front-end assemblies in the assembly department.

Bender's policy is to bid full manufacturing cost, plus 15 percent.

Required:

1. Prepare bids for Bender Automotive Works by using each of the following allocation methods:
 - a. Direct method.
 - b. Sequential method.
2. Which method most accurately reflects the cost of producing the front-end assemblies? Why?

25 OVERHEAD ASSIGNMENT: ACTUAL AND NORMAL ACTIVITY COMPARED

Reynolds Printing Company specializes in wedding announcements. Reynolds uses an actual job-order costing system. An actual overhead rate is calculated at the end of each month using actual direct labor hours and overhead for the month. Once the actual cost of a job is determined, the customer is billed at actual cost plus 50 percent.

During April, Mrs. Lucky, a good friend of owner Jane Reynolds, ordered three sets of wedding announcements to be delivered May 10, June 10, and July 10, respectively. Reynolds scheduled production for each order on May 7, June 7, and July 7, respectively. The orders were assigned job numbers 115, 116, and 117, respectively.

Reynolds assured Mrs. Lucky that she would attend each of her daughters' weddings. Out of sympathy and friendship, she also offered a lower price. Instead of cost plus 50 percent, she gave her a special price of cost plus 25 percent. Additionally, she agreed to wait until the final wedding to bill for the three jobs. On August 15, Reynolds asked her accountant to bring her the completed job-order cost sheets for Jobs 115,

116, and 117. She also gave instructions to lower the price as had been agreed upon. The cost sheets revealed the following information:

	Job 115	Job 116	Job 117
Cost of direct materials	\$250.00	\$250.00	\$250.00
Cost of direct labor (5 hours)	25.00	25.00	25.00
Cost of overhead	200.00	400.00	400.00
Total cost	\$475.00	\$675.00	\$675.00
Total price	\$593.75	\$843.75	\$843.75
Number of announcements	500	500	500

Reynolds could not understand why the overhead costs assigned to Jobs 116 and 117 were so much higher than those for Job 115. She asked for an overhead cost summary sheet for the months of May, June, and July, which showed that actual overhead costs were \$20,000 each month. She also discovered that direct labor hours worked on all jobs were 500 hours in May and 250 hours each in June and July.

Required:

- 1 How do you think Mrs. Lucky will feel when she receives the bill for the three sets of wedding announcements?
- 2 Explain how the overhead costs were assigned to each job.
- 3 Assume that Reynolds’s average activity is 500 hours per month and that the company usually experiences overhead costs of \$240,000 each year. Can you recommend a better way to assign overhead costs to jobs? Recompute the cost of each job and its price given your method of overhead cost assignment. Which method do you think is best? Why?

26 ASSIGNING OVERHEAD TO JOBS—ETHICAL ISSUES

Tonya Martin, CMA and controller of the Parts Division of Gunderson Inc., was meeting with Doug Adams, manager of the division. The topic of discussion was the assignment of overhead costs to jobs and their impact on the division’s pricing decisions. Their conversation was as follows:

Tonya: Doug, as you know, about 25 percent of our business is based on government contracts, with the other 75 percent based on jobs from private sources won through bidding. During the last several years, our private business has declined. We have been losing more bids than usual. After some careful investigation, I have concluded that we are overpricing some jobs because of improper assignment of overhead costs. Some jobs are also being underpriced. Unfortunately, the jobs being overpriced are coming from our higher-volume, labor-intensive products; thus, we are losing business.

Doug: I think I understand. Jobs associated with our high-volume products are being assigned more overhead than they should be receiving. Then, when we add our standard 40 percent markup, we end up with a higher price than our competitors, who assign costs more accurately.

Tonya: Exactly. We have two producing departments, one labor-intensive and the other machine-intensive. The labor-intensive department generates much less overhead than the machine-intensive department. Furthermore, virtually all of our high-volume jobs are labor-intensive. We have been using a plantwide rate based on direct labor hours to assign overhead to all jobs. As a result, the high-volume, labor-intensive jobs receive a greater share of the machine-intensive department’s overhead than they deserve. This problem can be greatly alleviated by switching to departmental overhead rates. For example, an average high-volume job would be assigned \$100,000 of overhead using a plantwide rate and only \$70,000 using departmental rates. The change would lower our bidding price on high-volume jobs by an average of \$42,000 per job. By increasing the accuracy of our product costing, we can make better pricing decisions and win back much of our private-sector business.

Doug: Sounds good. When can you implement the change in overhead rates?

Tonya: It won’t take long. I can have the new system working within four to six weeks—certainly by the start of the new fiscal year.

Doug: Hold it. I just thought of a possible complication. As I recall, most of our government contract work is done in the labor-intensive department. This new overhead assignment scheme will push down the cost on the government jobs, and we will lose revenues. They pay us full cost plus our standard markup. This business is not threatened by our current costing procedures, but we can’t switch our rates for only the

private business. Government auditors would question the lack of consistency in our costing procedures.

Tonya: You do have a point. I thought of this issue also. According to my estimates, we will gain more revenues from the private sector than we will lose from our government contracts. Besides, the costs of our government jobs are distorted; in effect, we are overcharging the government.

Doug: They don't know that and never will unless we switch our overhead assignment procedures. I think I have the solution. Officially, let's keep our plantwide overhead rate. All of the official records will reflect this overhead costing approach for both our private and government business. Unofficially, I want you to develop a separate set of books that can be used to generate the information we need to prepare competitive bids for our private-sector business.

Required:

- 1 Do you believe that the solution proposed by Doug is ethical? Explain.
- 2 Suppose that Tonya decides that Doug's solution is not right and objects strongly. Further suppose that, despite Tonya's objections, Doug insists strongly on implementing the action. What should Tonya do?

SOLUZIONI

Esercizio 1

1. Predetermined overhead rate = 0.75, or 75% of direct labor cost
2. Overhead applied to December production = $0.75 \times \$38,900 = \$29,175$

Esercizio 2

1. Applied overhead = Overhead rate \times Actual direct labor cost
= $0.75 \times \$607,200 = \$455,400$

Actual overhead	\$ 456,500	
Applied overhead	<u>455,400</u>	
Overhead variance	<u>\$ 1,100</u>	underapplied

2. Unadjusted COGS \$890,000
Add: Underapplied overhead 1,100
Adjusted COGS \$891,100

Esercizio 3

1. Since the predetermined overhead rate is not given, it must be calculated from BWIP amounts using either Job 44 or Job 45. Using Job 44,
Predetermined overhead rate =
=
= 0.625, or 62.5%

(The predetermined overhead rate using Job 45 is identical.)

2.

	<u>Job 44</u>	<u>Job 45</u>	<u>Job 46</u>	<u>Job 47</u>
Beginning balance, June 1	\$6,550	\$ 2,800	\$ 0	\$ 0
Direct materials	1,500	6,100	800	700
Direct labor	1,000	2,400	2,000	600
Applied overhead	<u>625</u>	<u>1,500</u>	<u>1,250</u>	<u>375</u>
Total, June 30	<u>\$9,675</u>	<u>\$12,800</u>	<u>\$4,050</u>	<u>\$1,675</u>

3. By the end of June, Jobs 44, 45, and 47 have been transferred out of Work in Process. Thus, the ending balance in Work in Process consists of Job 46.

Work in process, June 30 \$4,050

While three jobs (44, 45, and 47) were transferred out of Work in Process and into Finished Goods during June, only two jobs remain (Jobs 44 and 47).

Finished goods, June 1	\$ 0
Job 44	9,675
Job 47	<u>1,675</u>
Finished goods, June 30	<u>\$11,350</u>

4. One job, Job 45, was sold during June.

Cost of goods sold \$12,800

Esercizio 4

1. Allocation ratios for S1 based on number of employees:

Cutting = = 0.30

Sewing = = 0.70

Allocation ratios for S2 based on number of maintenance hours:

Cutting = = 0.80

Sewing = = 0.20

2.

	<u>Support Departments</u>		<u>Producing Departments</u>	
	<u>S1</u>	<u>S2</u>	<u>Cutting</u>	<u>Sewing</u>
Direct costs	\$ 180,000	\$ 150,000	\$122,000	\$ 90,500
Allocate:				
S1	(180,000)	—	54,000	126,000
S2	—	(150,000)	120,000	30,000
Total	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$296,000</u>	<u>\$246,500</u>

Esercizio 5

1. Allocation ratios:

<u>Shaping</u>	<u>Firing</u>	
Kilowatt-hours	0.30	0.70
Square feet	0.75	0.25
Direct labor hours	0.40	0.60

2. Cost assignment:

<u>Shaping</u>	<u>Firing</u>	
Direct overhead costs	\$ 75,000	\$234,000
Power:		
(0.30 × \$90,000)	27,000	
(0.70 × \$90,000)		63,000
General factory:		
(0.75 × \$167,000)	125,250	
(0.25 × \$167,000)		41,750
Human resources:		
(0.40 × \$84,000)	33,600	
(0.60 × \$84,000)		50,400
	<u>\$260,850</u>	<u>\$389,150</u>

Esercizio 6

- Auto manufacturing—a shop that builds autos from scratch (the way Rolls Royce used to build cars, or a car that can be built from kits) would use job-order costing. Large automobile manufacturers use process costing. (While the customer may think the car is being built to order when selected among options, actually, the manufacturer waits until enough of the same orders are received to build a run of virtually identical cars.)
- Dental services—basic dental services use job-order costing, but denturists (who make only dentures) can use process costing. (It is important to recognize that while the dentures themselves are uniquely shaped to fit each patient, the costs involved do not differ from patient to patient.)
- Auto repair—a general automobile repair shop uses job-order costing. However, a shop devoted to only one type of service or repair (e.g., oil change) can use process costing yet price the cost of the number of quarts of oil used for each customer.
- Costume making—a small tailor shop would use job-order costing. However, a large costume manufacturer that sews a certain number of costume designs would use process costing.

Esercizio 7

- Assembly department overhead rate =
= \$4 per direct labor hour
- Testing department overhead rate =

= \$1.50 per machine hour

2. Assembly department applied overhead = $\$4 \times 13,000 = \$52,000$

Testing department applied overhead = $\$1.50 \times 13,050 = \$19,575$

3.	<u>Assembly Department</u>	<u>Testing Department</u>
Actual overhead	\$53,000	\$15,500
Applied overhead	<u>52,000</u>	<u>19,575</u>
Overhead variance	<u>\$ 1,000</u>	<u>\$ (4,075)</u>

Assembly department has underapplied overhead of \$1,000.

Testing department has overapplied overhead of \$4,075.

Esercizio 8

1.	<u>Job 877</u>	<u>Job 878</u>	<u>Job 879</u>	<u>Job 880</u>
Beginning balance	\$20,520	—	—	—
Direct materials	13,960	\$7,000	\$350	\$4,800
Direct labor	13,800	10,000	1,500	4,000

2. Applied overhead in October for:

Job 877 = $\$13,800 \times 0.85 = \$11,730$

Job 878 = $\$10,000 \times 0.85 = \$8,500$

Job 879 = $\$1,500 \times 0.85 = \$1,275$

Job 880 = $\$4,000 \times 0.85 = \$3,400$

3. Work in Process, October 31:

Job 877	\$60,010
Job 879	3,125
Job 880	<u>12,200</u>
Total	<u>\$75,335</u>

4. Cost of Job 878 = $\$7,000 + \$10,000 + \$8,500 = \$25,500$

Price of Job 878 = $\$25,500 + 0.5(\$25,500) = \$38,250$

Esercizio 9

1.	<u>Job 73</u>	<u>Job 74</u>	<u>Job 75</u>
Balance, July 1	\$ 8,450	—	—
Direct materials	7,450	\$12,300	\$16,150
Direct labor	12,000	10,500	23,000
Applied overhead	<u>8,000</u>	<u>7,000</u>	<u>20,000</u>
Total	<u>\$35,900</u>	<u>\$29,800</u>	<u>\$59,150</u>

2. Work in Process, July 31 = Job 74 = \$29,800

3. Finished Goods:

Beginning balance	\$	49,000
Job 75 (transferred in)		59,150
Job 70 (sold)		<u>(19,000)</u>
Ending balance, July 31	\$	<u>89,150</u>

4. Cost of Goods Sold = Job 70 + Job 73
 = \$19,000 + \$35,900
 = \$54,900

Sales [$\$54,900 + (0.30 \times \$54,900)$]			\$71,370
Cost of goods sold			<u>54,900</u>
Gross margin			\$16,470
Less:			
Variable marketing ($0.1 \times \$71,370$)		\$7,137	
Fixed marketing		2,000	
Administrative expense		<u>4,800</u>	<u>13,937</u>
Operating income			<u>\$ 2,533</u>

Esercizio 10

1. Direct materials			\$	18,000
Direct labor:				
Department A		\$36,000		
Department B		<u>6,000</u>		42,000
Overhead ($\$12 \times 7,000$ DLH)				<u>84,000</u>
Total manufacturing costs			\$	<u>144,000</u>

2. Unit cost = = \$14.40

3. Direct materials				\$18,000
Direct labor:				
Department A		\$36,000		
Department B		<u>6,000</u>		42,000
Overhead:				
Department A ($\$3 \times 6,000$)				18,000
Department B ($\$7 \times 1,200$)				<u>8,400</u>
Total manufacturing costs				<u>\$86,400</u>

4. Unit cost = = \$8.64

Esercizio 11

1. a. Raw Materials 27,800

.....	Accounts Payable	
27,800		
b.....	Work in Process	21,000
.....	Raw Materials	
21,000		
c.....	Work in Process	27,000
.....	Wages Payable	
27,000		
d.....	Overhead Control	15,500
.....	Various Payables	
15,500		
e. Work in Process	13,500	
.....	Overhead Control	
13,500		
.....	Total direct labor hours =	1,800
.....	Applied overhead =	$1,800 \times \$7.50 = \$13,500$
f.....	Finished Goods	47,700
.....	Work in Process	
47,700		
g.....	Cost of Goods Sold	58,700
.....	Finished Goods	
58,700		
.....	Accounts Receivable	82,180
.....	Sales Revenue	
82,180		

2.		<u>Job 58</u>	<u>Job 59</u>	<u>Job 60</u>
	Direct materials	\$ 9,300	\$ 6,900	\$ 4,800
	Direct labor	12,000	9,000	6,000
	Applied overhead	<u>6,000</u>	<u>4,500</u>	<u>3,000</u>
	Total cost	<u>\$27,300</u>	<u>\$20,400</u>	<u>\$13,800</u>

3. Raw Materials:	
Beginning balance	\$ 5,170
Purchases	27,800
Direct materials	<u>(21,000)</u>
Ending balance	<u>\$ 11,970</u>

4. Work in Process:		
Beginning balance.....		\$ 0
Direct materials.....		21,000
Direct labor.....		27,000
Applied overhead.....		13,500
Jobs completed:		
Job 58.....	\$27,300	
Job 59.....	<u>20,400</u>	<u>(47,700)</u>
Ending balance.....		<u>\$ 13,800</u>

Esercizio 12

5. Finished Goods:			
Beginning balance		\$	31,400
Jobs transferred in:			
Job 58.....	\$27,300		
Job 59.....	<u>20,400</u>		47,700
Jobs sold:			
Job 57.....	\$31,400		
Job 58.....	<u>27,300</u>		(58,700)
Ending balance		\$	<u>20,400</u>

Esercizio 13

1. Overhead rate = = \$6.65/per DLH

2.		<u>Job 210</u>	<u>Job 211</u>	<u>Job 212</u>	<u>Job 213</u>	<u>Job 214</u>
Balance, July 1	\$	32,780	\$ 51,770	\$ 29,600	\$ 0	\$ 0
Direct materials		25,500	39,800	24,450	13,600	18,420
Direct labor		60,000	28,500	41,500	23,000	21,300
Applied overhead		<u>26,600</u>	<u>12,635</u>	<u>17,955</u>	<u>9,975</u>	<u>9,310</u>
Total cost		<u>\$144,880</u>	<u>\$132,705</u>	<u>\$113,505</u>	<u>\$46,575</u>	<u>\$49,030</u>

3. Ending balance in Work in Process = Job 211 + Job 213 + Job 214
= \$132,705 + \$46,575 + \$49,030
= \$228,310

4. Cost of Goods Sold = Job 210 + Job 212
= \$144,880 + \$113,505 = \$258,385

Esercizio 14

1. Cost of Alban job:

Professional time (85 hours @ \$120)	\$10,200
Mileage (510 miles @ \$0.50)	255
Photographs	<u>120</u>
Total	<u>\$10,575</u>

2. Overhead is included in the rate for professional time. This is easier for professionals than to calculate a separate overhead rate and charge it to clients. In effect, Spade Millhone charges a conversion cost rate, not a labor rate, to its clients.

3. Answers may vary. The following is one example.

Rex Spade Mileage Log

<u>Date</u>	<u>Beginning Client</u>	<u>Ending Mileage</u>	<u>Mileage</u>	<u>Total Destination</u>	<u>Miles</u>
7/8	Alban	56,780	56,815	Ofc. to claimant #1, to Dr. Phony, to claimant #2, to ofc.	35

7/9	Alban	56,815	56,903	Ofc. to claimant #3, to claimant #4, to ofc.	88
7/10	Alban	56,903	57,078	Ofc. to witness #3, to client, to ofc.	175
7/11	Alban	57,078	57,290	Ofc. to claimant #2, to claimant #4, to ofc.	212

Note: Separate mileage logs are kept by Rex Spade and Victoria Millhone. Then, relevant amounts are transferred to cost sheets (or folders) for each client.

Esercizio 15

- Overhead rate = = 0.80 times direct labor dollars

(This rate was calculated using information from the Asher job; however, the Styne and Wollner jobs would give the same answer.)

2.		<u>Asher</u>	<u>Styne</u>	<u>Wollner</u>	<u>Johns</u>	<u>Burton</u>
	Beginning WIP	\$ 730	\$1,600	\$2,670	\$ 0	\$ 0
	Direct materials	600	550	860	1,310	260
	Direct labor	300	200	250	1,650	180
	Applied overhead	<u>240</u>	<u>160</u>	<u>200</u>	<u>1,320</u>	<u>144</u>
	Total	<u>\$1,870</u>	<u>\$2,510</u>	<u>\$3,980</u>	<u>\$4,280</u>	<u>\$584</u>

Note: This is just one way of setting up the job-order cost sheets. You might prefer to keep the details on the materials, labor, and overhead in beginning inventory costs.

- Since the Wollner and Johns jobs were completed, the others must still be in process. Therefore, the ending balance in Work in Process is the sum of the costs of the Asher, Styne, and Burton jobs.

Asher	\$1,870
Styne	2,510
Burton	<u>584</u>
Ending WIP	<u>\$4,964</u>

Cost of Goods Sold = Wollner Job + Johns Job = \$3,980 + \$4,280 = \$8,260

- Uehler Prosthetics Company
Income Statement

For the Month Ended January 31

Sales (1.2 × \$8,260).....	\$9,912	Cost
of goods sold.....	<u>8,260</u>	
.....	Gross margin	\$1,652
Marketing and administrative expenses	<u>850</u>	
.....	Operating income	<u>\$ 802</u>

Esercizio 16

- OH rate = = \$2 per machine hour
- Department A: = \$2.50 per machine hour

Department B: = \$1.375 per machine hour

3. Job 73 Job 74

Plantwide:

$70 \times \$2 = \140

$70 \times \$2 = \140

Departmental:

$20 \times \$2.50$	\$ 50.00
$50 \times \$1.375$	<u>68.75</u>
	<u>\$118.75</u>

$50 \times \$2.50$	\$125.00
$20 \times \$1.375$	<u>27.50</u>
	<u>\$152.50</u>

Department A appears to be more overhead intensive, so jobs spending more time in Department A ought to receive more overhead. Thus, departmental rates provide more accuracy.

4. Plantwide rate: = \$2.50

Department B: = \$2.50

Job 73

Job 74

Plantwide:

$70 \times \$2.50 = \175

$70 \times \$2.50 = \175

Departmental:

$20 \times \$2.50$	\$ 50
$50 \times \$2.50$	<u>125</u>
	<u>\$175</u>

$50 \times \$2.50$	\$125
$20 \times \$2.50$	<u>50</u>
	<u>\$175</u>

Assuming that machine hours is a good cost driver, the departmental rates reveal that overhead consumption is the same in each department. In this case, there is no need for departmental rates, and a plantwide rate is sufficient.

Esercizio 17

1. Overhead rate = = \$59 per machine hour

	<u>Job 1</u>	<u>Job 2</u>
Direct materials	\$ 4,500	\$ 8,600
Direct labor.....	1,000	2,000
Overhead (\$59 × 200 machine hours).....	<u>11,800</u>	<u>11,800</u>
Total manufacturing cost	\$17,300	\$22,400
Plus 30% markup	<u>5,190</u>	<u>6,720</u>
Bid price	<u>\$22,490</u>	<u>\$29,120</u>

2. Welding overhead rate = = \$40 per machine hour

Assembly overhead rate = = \$2.20 per DLH

Finishing overhead rate = = \$125 per machine hour

	<u>Job 1</u>	<u>Job 2</u>
Direct materials	\$ 4,500	\$ 8,600

Direct labor.....	1,000	2,000
Overhead:		
Welding (\$40 × 50); (\$40 × 30)	2,000	1,200
Assembly (\$2.20 × 60); (\$2.20 × 20)	132	44
Finishing (\$125 × 110); (\$125 × 165)	<u>13,750</u>	<u>20,625</u>
Total manufacturing cost.....	\$21,382	\$32,469
Plus 30% markup	<u>6,415</u>	<u>9,741</u>
Bid price	<u>\$27,797</u>	<u>\$42,210</u>

Esercizio 18

1.		<u>Jan's Job</u>	<u>Ed's Job</u>
Materials.....	\$ 50	\$ 75	
Direct labor.....	60	120	
Applied overhead			
0.20 × (\$50 + \$60).....	22		
0.20 × (\$75 + \$120).....			39
Total	<u>\$132</u>		<u>\$234</u>

2. Since Jan's job is more like the jobs Steve is used to doing, her costs are likely to be more accurate. Clearly, Steve is unsure just how to cost Ed's job. If he expects to get more use from the tools he buys for Ed's job, then he can absorb them into his overhead rate. If not, perhaps they should be added to the cost of Ed's job as a part of materials.

Problem 16-52

1. Job 64:

Direct materials	\$	1,240
Direct labor		6,150
Overhead (\$12 × 410)		<u>4,920</u>
Total cost		<u>\$12,310</u>

Unit cost = = \$246.20

2. Ending Work in Process = Cost of Job 65
= \$985 + \$8,745 + (\$12 × 583) = \$16,726

3.	Finished Goods	12,310
	..... Work in Process	
	12,310	
	Cost of Goods Sold	12,310
	..... Finished Goods	
	12,310	
	Accounts Receivable.....	19,696
	..... Sales Revenue	
	19,696	
	(160% × \$12,310 = \$19,696)	

Esercizio 19

1.	a.	Raw Materials	3,000
		Accounts Payable	
		3,000	
	b.	Work in Process	1,700
		Raw Materials	
		1,700	
	c.	Work in Process [$\$8 \times (50 + 100)$]	1,200
		Wages Payable	
		1,200	
	d.	Work in Process ($\$7.50 \times 150$)	1,125
		Overhead Control	
		1,125	
	e.	Overhead Control	1,230
		Cash	
		1,230	

2.	<u>Job 443</u>		<u>Job 444</u>	
	Direct materials	\$ 500	Direct materials	\$1,200
	Direct labor	400	Direct labor	800
	Applied overhead	<u>375</u>	Applied overhead	<u>750</u>
	Total	<u>\$1,275</u>	Total	<u>\$2,750</u>
	f.	Finished Goods	1,275	
		Work in Process		
		1,275		
	g.	Cost of Goods Sold	2,000	
		Finished Goods		
		2,000		
		Accounts Receivable	2,500	
		Sales		
		2,500		

3. **Kearney Company**
Schedule of Cost of Goods Manufactured
For the Month Ended April 30

Direct materials:		
Beginning raw materials inventory	\$1,400	
Purchases of raw materials	<u>3,000</u>	
Total raw materials available	\$4,400	
Ending raw materials	<u>2,700</u>	
Raw materials used		\$1,700
Direct labor		1,200
Overhead	\$1,230	
Less: Underapplied overhead	<u>105</u>	
Overhead applied		<u>1,125</u>
Current manufacturing costs		\$4,025
Add: Beginning work in process		<u>0</u>
Total manufacturing costs		\$4,025
Less: Ending work in process		<u>2,750</u>
Cost of goods manufactured		<u>\$1,275</u>

1. Applied overhead = Direct labor cost × Overhead rate
 \$140,000 = \$80,000 × Overhead rate
 Overhead rate = 1.75, or 175% of direct labor cost

2. Applied overhead	\$140,000
Actual overhead	<u>138,500</u>
Overapplied overhead	<u>\$ 1,500</u>

3. Direct materials	\$ 40,000
Direct labor	80,000
Overhead applied	<u>140,000</u>
	\$260,000
Add: Beginning WIP	17,000
Less: Ending WIP	<u>(32,000)</u>

Cost of goods manufactured \$245,000

4. Overhead Control	1,500
Cost of Goods Sold	
1,500	

Adjusted Cost of Goods Sold:

\$210,000
<u>(1,500)</u>
<u>\$208,500</u>

5. Direct materials (\$32,000 – \$10,000 – \$17,500)	\$ 4,500
Direct labor (1,000 × \$10)	10,000
Overhead applied (175% × \$10,000)	<u>17,500</u>
Ending work in process	<u>\$32,000</u>

Esercizio 21

1. Overhead rate = = \$12 per direct labor hour

2. Direct materials	\$ 2,340
Direct labor	3,600
Applied overhead	<u>4,320*</u>
Total cost	<u>\$10,260</u>

*\$4,320 = \$12 ×

3. Overhead Control 185,000

Lease Payable	5,000
Accumulated Depreciation	20,000
Wages Payable	100,000
Utilities Payable	15,000
Other Payables	45,000
Work in Process (\$12 × 15,400)	184,800

	..... Overhead Control	
	184,800	
4.	Actual overhead.....	\$185,000
	Applied overhead.....	<u>184,800</u>
	..... Underapplied overhead	<u>\$ 200</u>
5.	Normal cost of goods sold.....	\$700,000
	Add: Underapplied overhead.....	<u>200</u>
	..... Adjusted cost of goods sold	<u>\$700,200</u>

Esercizio 22

1.	a..... Raw Materials		42,630
	..... Accounts Payable		
	42,630		
	b..... Work in Process		27,000
	..... Raw Materials		
	27,000		
	c..... Work in Process		26,320
	..... Wages Payable		
	26,320		
	d..... Overhead Control		19,950
	..... Cash		
	19,950		
	e..... Work in Process		18,800
	..... Overhead Control		
	18,800		
2.	Job 703:		
	Beginning balance, WIP	\$10,000	
	Direct materials	12,500	
	Direct labor	10,920	
	Overhead applied	<u>7,800</u>	
	Total	<u>\$41,220</u>	
	Job 704:		
	Direct materials	\$14,500	
	Direct labor	15,400	
	Overhead applied	<u>11,000</u>	
	Total	<u>\$40,900</u>	
3.	f..... Finished Goods		41,220
	..... Work in Process		
	41,220		
	h..... Cost of Goods Sold		6,240
	..... Finished Goods		
	6,240		
	..... Accounts Receivable		8,112
	..... Sales		
	8,112		

4. a. Raw Materials:

Beginning balance	\$ 6,070
Add: Purchases	42,630
Less: Materials requisitioned	<u>(27,000)</u>
Ending balance	<u>\$ 21,700</u>

b. Work in Process:

Beginning balance	\$ 10,000
Add: Materials requisitioned	27,000
Direct labor	26,320
Overhead applied	18,800
Less: Jobs completed	<u>(41,220)</u>
Ending balance	<u>\$ 40,900</u>

c. Finished Goods:

Beginning balance	\$ 6,240
Add: Jobs completed	41,220
Less: Jobs sold	<u>(6,240)</u>
Ending balance	<u>\$ 41,220</u>

Esercizio 23

1. Direct method:

Proportion of:	<u>Laboratory</u>	<u>Pathology</u>
Number of samples	0.60	0.40
Transactions processed	0.65	0.35
Direct costs	\$345,000	\$456,000
Delivery:		
(0.60 × \$240,000)	144,000	
(0.40 × \$240,000)		96,000
Accounting:		
(0.65 × \$270,000)	175,500	
(0.35 × \$270,000)		94,500
Total	<u>\$664,500</u>	<u>\$646,500</u>

2. Sequential method:

	<u>Delivery</u>	<u>Accounting</u>	<u>Laboratory</u>	<u>Pathology</u>
Transactions	0.0500	—	0.6175	0.3325
Number of samples	—	—	0.6000	0.4000
Direct costs	\$ 240,000	\$ 270,000	\$345,000	\$456,000
Accounting:				
(0.0500 × \$270,000)	13,500	(13,500)		
(0.6175 × \$270,000)		(166,725)	166,725	
(0.3325 × \$270,000)		(89,775)		89,775
Delivery:				
(0.6000 × \$253,500)	(152,100)		152,100	
(0.4000 × \$253,500)	(101,400)			101,400
Total	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$663,825</u>	<u>\$647,175</u>

Esercizio 24

1. a. Direct method:

	<u>Drilling</u>	<u>Assembly</u>
Machine hours	0.80	0.20
Kilowatt-hours	0.10	0.90
Maintenance:		
(0.80 × \$320,000)	\$256,000	
(0.20 × \$320,000)		\$ 64,000
Power:		
(0.10 × \$400,000)	40,000	
(0.90 × \$400,000)		360,000
Direct costs	<u>163,000</u>	<u>90,000</u>
Total	<u>\$459,000</u>	<u>\$514,000</u>

Drilling: = \$15.30/machine hour

Assembly: = \$12.85/direct labor hour

Prime costs	\$1,817.00
Drilling (\$15.30 × 2)	30.60
Assembly (\$12.85 × 50)	<u>642.50</u>
Total cost	\$2,490.10
Markup (15%)	<u>373.52</u>
Bid price	<u>\$2,863.62</u>

b. Sequential method: Allocate Power first, then Maintenance

	<u>Maintenance</u>	<u>Power</u>	<u>Drilling</u>	<u>Assembly</u>
Machine hours	—	—	0.80	0.20
Kilowatt-hours	0.10	—	0.09	0.81
Direct costs	\$ 320,000	\$ 400,000	\$163,000	\$ 90,000
Power:				
(0.10 × \$400,000)	40,000	(40,000)		
(0.09 × \$400,000)		(36,000)	36,000	
(0.81 × \$400,000)		(324,000)		324,000
Maintenance:				
(0.80 × \$360,000)	(288,000)	—	288,000	
(0.20 × \$360,000)	<u>(72,000)</u>			<u>72,000</u>
Total	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$487,000</u>	<u>\$486,000</u>

Drilling: = \$16.23/machine hour

Assembly: = \$12.15/direct labor hour

Prime costs	\$1,817.00
Drilling (\$16.23 × 2)	32.46
Assembly (\$12.15 × 50)	<u>607.50</u>
Total cost	\$2,456.96
Markup (15%)	<u>368.54</u>
Bid price	<u>\$2,825.50</u>

2. The sequential method is the more accurate because it considers some of the support department interactions.

Esercizio 25

1. Mrs. Lucky won't like being charged more for one job when the same number and type of announcements were produced in each job.
2. May: Actual rate = = \$40 per hour
Overhead assigned: $\$40 \times 5 = \200
June and July: Actual rate = = \$80 per hour
Overhead assigned: $\$80 \times 5 = \400
3. Predetermined rate = = \$40 per hour

Cost and price of each job:

Direct materials	\$250.00
Direct labor	25.00
Overhead (5 × \$40)	<u>200.00</u>
Total cost	\$475.00
Plus 25% markup	<u>118.75</u>
Price	<u>\$593.75</u>

Using a predetermined rate will avoid the nonuniform production problem revealed in the first two requirements and result in a more accurate application of overhead and fairer costing of the summer jobs.

Esercizio 26

1. The solution Doug proposes is not ethical. Although maintaining the current plantwide rate is probably not illegal, its continuation has one purpose: to extract extra profits from government business. Doug knows the plantwide rate is not accurately assigning overhead costs to the various jobs and is willing to alter the assignments on an "unofficial basis" for purposes of bidding on private-sector jobs. Fundamentally, ethical behavior is concerned with choosing right over wrong. To knowingly overcharge government for future business certainly seems wrong. To continue overpricing knowing the new overhead rates would more than make up for any lost profits from the government sector (through more competitive bidding in the private sector) is a clear indication of greed. While managers have an obligation to maximize profits, this obligation must be within ethical boundaries.
2. Tonya should first determine whether or not Gunderson has a corporate code of conduct. She can pursue the avenues suggested by the code. For example, if Tonya cannot persuade Doug to refrain from implementing his scheme, she could present her objections to Doug's immediate supervisor. If a resolution cannot be realized at this level, then Tonya should go to the next higher management level. If no resolution is possible after appealing to all higher levels, then resignation may be the only remaining option.