Questions & Solutions

Cost Accounting

A Managerial Emphasis

15th Edition

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Chapter - 4

Job Costing


QUESTIONS

MyAccountingLab

Questions

4-1 Define cost pool, cost tracing, cost allocation, and cost-allocation base.

4-2 How does a job-costing system differ from a process-costing system?

4-3 Why might an advertising agency use job costing for an advertising campaign by PepsiCo, whereas a bank might use process costing to determine the cost of checking account deposits?

4-4 Describe the seven steps in job costing.

4-5 Give examples of two cost objects in companies using job costing.

4-6 Describe three major source documents used in job-costing systems.

4-7 What is the advantage of using computerized source documents to prepare job-cost records?

4-8 Give two reasons why most organizations use an annual period rather than a weekly or monthly period to compute budgeted indirect-cost rates.

4-9 Distinguish between actual costing and normal costing.

4-10 Describe two ways in which a house-construction company may use job-cost information.

4-11 Comment on the following statement: "In a normal-costing system, the amounts in the Manufacturing Overhead Control account will always equal the amounts in the Manufacturing Overhead Allocated account."

4-12 Describe three different debit entries to the Work-in-Process Control T-account under normal costing.

4-13 Describe three alternative ways to dispose of under- or overallocated overhead costs.

4-14 When might a company use budgeted costs rather than actual costs to compute direct-labor rates?

4-15 Describe briefly why Electronic Data Interchange (EDI) is helpful to managers.

Exercises

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4-16 Job costing, process costing. In each of the following situations, determine whether job costing or process costing would be more appropriate.

a. A CPA firm
b. An oil refinery
c. A custom furniture manufacturer
d. A tire manufacturer
e. A textbook publisher
f. A pharmaceutical company
g. An advertising agency
h. An architecture firm
i. A flour mill
j. A paint manufacturer
k. A nursing home
l. A landscaping company
m. A cola-drink-concentrate producer
n. A movie studio
o. A law firm
p. A commercial aircraft manufacturer
q. A management consulting firm
r. A plumbing contractor
s. A catering service
t. A paper mill
u. An auto repair shop

4-17 Actual costing, normal costing, accounting for manufacturing overhead. Destin Products uses a job-costing system with two direct-cost categories (direct materials and direct manufacturing labor) and one manufacturing overhead cost pool. Destin allocates manufacturing overhead costs using direct manufacturing labor costs. Destin provides the following information:

	Budget for 2014	Actual Results for 2014
Direct material costs	$2,000,000	$1,900,000
Direct manufacturing labor costs	1,500,000	1,450,000
Manufacturing overhead costs	2,700,000	2,755,000

Required

1. Compute the actual and budgeted manufacturing overhead rates for 2014.
2. During March, the job-cost record for Job 626 contained the following information:

Direct materials used	$40,000
Direct manufacturing labor costs	$30,000

Compute the cost of Job 626 using (a) actual costing and (b) normal costing.

3. At the end of 2014, compute the under- or overallocated manufacturing overhead under normal costing. Why is there no under- or overallocated overhead under actual costing?
4. Why might managers at Destin Products prefer to use normal costing?

4-18 Job costing, normal and actual costing. Anderson Construction assembles residential houses. It uses a job-costing system with two direct-cost categories (direct materials and direct labor) and one indirect-cost pool (assembly support). Direct labor-hours is the allocation base for assembly support costs. In December 2013, Anderson budgets 2014 assembly-support costs to be $8,000,000 and 2014 direct labor-hours to be 160,000.

At the end of 2014, Anderson is comparing the costs of several jobs that were started and completed in 2014.

	Laguna Model	Mission Model
Construction period	Feb–June 2014	May–Oct 2014
Direct material costs	$106,650	$127,970
Direct labor costs	$ 36,276	$ 41,750
Direct labor-hours	920	1,040

Direct materials and direct labor are paid for on a contract basis. The costs of each are known when direct materials are used or when direct labor-hours are worked. The 2014 actual assembly-support costs were $7,614,000, and the actual direct labor-hours were 162,000.

Required

1. Compute the (a) budgeted indirect-cost rate and (b) actual indirect-cost rate. Why do they differ?
2. What are the job costs of the Laguna Model and the Mission Model using (a) normal costing and (b) actual costing?
3. Why might Anderson Construction prefer normal costing over actual costing?

4-19 Budgeted manufacturing overhead rate, allocated manufacturing overhead. Gammaro Company uses normal costing. It allocates manufacturing overhead costs using a budgeted rate per machine-hour. The following data are available for 2014:

Budgeted manufacturing overhead costs	$4,200,000
Budgeted machine-hours	175,000
Actual manufacturing overhead costs	$4,050,000
Actual machine-hours	170,000

Required

1. Calculate the budgeted manufacturing overhead rate.
2. Calculate the manufacturing overhead allocated during 2014.
3. Calculate the amount of under- or overallocated manufacturing overhead. Why do Gammaro's managers need to calculate this amount?

4-20 Job costing, accounting for manufacturing overhead, budgeted rates. The Lynn Company uses a normal job-costing system at its Minneapolis plant. The plant has a machining department and an assembly department. Its job-costing system has two direct-cost categories (direct materials and direct manufacturing labor) and two manufacturing overhead cost pools (the machining department overhead, allocated to jobs based on actual machine-hours, and the assembly department overhead, allocated to jobs based on actual direct manufacturing labor costs). The 2014 budget for the plant is as follows:

	Machining Department	Assembly Department
Manufacturing overhead	$1,800,000	$3,600,000
Direct manufacturing labor costs	$1,400,000	$2,000,000
Direct manufacturing labor-hours	100,000	200,000
Machine-hours	50,000	200,000

Required

1. Present an overview diagram of Lynn's job-costing system. Compute the budgeted manufacturing overhead rate for each department.
2. During February, the job-cost record for Job 494 contained the following:

	Machining Department	Assembly Department
Direct materials used	$45,000	$70,000
Direct manufacturing labor costs	$14,000	$15,000
Direct manufacturing labor-hours	1,000	1,500
Machine-hours	2,000	1,000

   Compute the total manufacturing overhead costs allocated to Job 494.
3. At the end of 2014, the actual manufacturing overhead costs were $2,100,000 in machining and $3,700,000 in assembly. Assume that 55,000 actual machine-hours were used in machining and that actual direct manufacturing labor costs in assembly were $2,200,000. Compute the over- or underallocated manufacturing overhead for each department.

4-21 Job costing, consulting firm. Taylor & Associates, a consulting firm, has the following condensed budget for 2014:

Revenues		$20,000,000
Total costs:		
Direct costs		
Professional Labor	$ 5,000,000	
Indirect costs		
Client support	13,000,000	18,000,000
Operating income		$ 2,000,000

Taylor has a single direct-cost category (professional labor) and a single indirect-cost pool (client support). Indirect costs are allocated to jobs on the basis of professional labor costs.

Required

1. Prepare an overview diagram of the job-costing system. Calculate the 2014 budgeted indirect-cost rate for Taylor & Associates.
2. The markup rate for pricing jobs is intended to produce operating income equal to 10% of revenues. Calculate the markup rate as a percentage of professional labor costs.
3. Taylor is bidding on a consulting job for Tasty Chicken, a fast food chain specializing in poultry meats. The budgeted breakdown of professional labor on the job is as follows:

Professional Labor Category	Budgeted Rate per Hour	Budgeted Hours
Director	$200	3
Partner	100	16
Associate	50	40
Assistant	30	160

Calculate the budgeted cost of the Tasty Chicken job. How much will Taylor bid for the job if it is to earn its target operating income of 10% of revenues?

4-22 Time period used to compute indirect cost rates. Plunge Manufacturing produces outdoor wading and slide pools. The company uses a normal-costing system and allocates manufacturing overhead on the basis of direct manufacturing labor-hours. Most of the company's production and sales occur in the first and second quarters of the year. The company is in danger of losing one of its larger customers, Socha Wholesale, due to large fluctuations in price. The owner of Plunge has requested an analysis of the manufacturing cost per unit in the second and third quarters. You have been provided the following budgeted information for the coming year:

	Quarter			
	1	2	3	4
Pools manufactured and sold	565	490	245	100

It takes 1 direct manufacturing labor-hour to make each pool. The actual direct material cost is $14.00 per pool. The actual direct manufacturing labor rate is $20 per hour. The budgeted variable manufacturing overhead rate is $15 per direct manufacturing labor-hour. Budgeted fixed manufacturing overhead costs are $12,250 each quarter.

Required

1. Calculate the total manufacturing cost per unit for the second and third quarter assuming the company allocates manufacturing overhead costs based on the budgeted manufacturing overhead rate determined for each quarter.
2. Calculate the total manufacturing cost per unit for the second and third quarter assuming the company allocates manufacturing overhead costs based on an annual budgeted manufacturing overhead rate.
3. Plunge Manufacturing prices its pools at manufacturing cost plus 30%. Why might Socha Wholesale be seeing large fluctuations in the prices of pools? Which of the methods described in requirements 1 and 2 would you recommend Plunge use? Explain.

4-23 Accounting for manufacturing overhead. Jamison Woodworking uses normal costing and allocates manufacturing overhead to jobs based on a budgeted labor-hour rate and actual direct labor-hours. Under- or overallocated overhead, if immaterial, is written off to Cost of Goods Sold. During 2014, Jamison recorded the following:

Budgeted manufacturing overhead costs	$4,400,000
Budgeted direct labor-hours	200,000
Actual manufacturing overhead costs	$4,650,000
Actual direct labor-hours	212,000

Required

1. Compute the budgeted manufacturing overhead rate.
2. Prepare the summary journal entry to record the allocation of manufacturing overhead.
3. Compute the amount of under- or overallocated manufacturing overhead. Is the amount significant enough to warrant proration of overhead costs, or would it be permissible to write it off to cost of goods sold? Prepare the journal entry to dispose of the under- or overallocated overhead.

4-24 Job costing, journal entries. The University of Chicago Press is wholly owned by the university. It performs the bulk of its work for other university departments, which pay as though the press were an outside business enterprise. The press also publishes and maintains a stock of books for general sale. The press uses normal costing to cost each job. Its job-costing system has two direct-cost categories (direct materials and direct manufacturing labor) and one indirect-cost pool (manufacturing overhead, allocated on the basis of direct manufacturing labor costs).

The following data (in thousands) pertain to 2014:

Direct materials and supplies purchased on credit	$ 800
Direct materials used	710
Indirect materials issued to various production departments	100
Direct manufacturing labor	1,300
Indirect manufacturing labor incurred by various production departments	900
Depreciation on building and manufacturing equipment	400
Miscellaneous manufacturing overhead* incurred by various production departments (ordinarily would be detailed as repairs, photocopying, utilities, etc.)	550
Manufacturing overhead allocated at 160% of direct manufacturing labor costs	?
Cost of goods manufactured	4,120
Revenues	8,000
Cost of goods sold (before adjustment for under- or overallocated manufacturing overhead)	4,020
Inventories, December 31, 2013 (not 2014):	
Materials Control	100
Work-in-Process Control	60
Finished Goods Control	500

Required

1. Prepare an overview diagram of the job-costing system at the University of Chicago Press.
2. Prepare journal entries to summarize the 2014 transactions. As your final entry, dispose of the year-end under- or overallocated manufacturing overhead as a writeoff to Cost of Goods Sold. Number your entries. Explanations for each entry may be omitted.
3. Show posted T-accounts for all inventories, Cost of Goods Sold, Manufacturing Overhead Control, and Manufacturing Overhead Allocated.
4. How did the University of Chicago Press perform in 2014?

4-25 Journal entries, T-accounts, and source documents. Creation Company produces gadgets for the coveted small appliance market. The following data reflect activity for the year 2014:

Costs incurred:	
Purchases of direct materials (net) on credit	$122,000
Direct manufacturing labor cost	83,000
Indirect labor	54,000
Depreciation, factory equipment	32,000
Depreciation, office equipment	7,900
Maintenance, factory equipment	29,000
Miscellaneous factory overhead	9,900
Rent, factory building	78,000
Advertising expense	94,000
Sales commissions	33,000

Inventories:

	January 1, 2014	December 31, 2014
Direct materials	$ 9,800	$13,000
Work in process	6,300	23,000
Finished goods	68,000	27,000

*The term *manufacturing overhead* is not used uniformly. Other terms that are often encountered in printing companies include *job overhead* and *shop overhead*.

Creation Co. uses a normal-costing system and allocates overhead to work in process at a rate of $2.60 per direct manufacturing labor dollar. Indirect materials are insignificant so there is no inventory account for indirect materials.

Required

1. Prepare journal entries to record the transactions for 2014 including an entry to close out over- or underallocated overhead to cost of goods sold. For each journal entry indicate the source document that would be used to authorize each entry. Also note which subsidiary ledger, if any, should be referenced as backup for the entry.
2. Post the journal entries to T-accounts for all of the inventories, Cost of Goods Sold, the Manufacturing Overhead Control Account, and the Manufacturing Overhead Allocated Account.

4-26 Job costing, journal entries. Donald Transport assembles prestige manufactured homes. Its job-costing system has two direct-cost categories (direct materials and direct manufacturing labor) and one indirect-cost pool (manufacturing overhead allocated at a budgeted $31 per machine-hour in 2014). The following data (in millions) show operation costs for 2014:

Materials Control, beginning balance, January 1, 2014	$ 18
Work-in-Process Control, beginning balance, January 1, 2014	9
Finished Goods Control, beginning balance, January 1, 2014	10
Materials and supplies purchased on credit	154
Direct materials used	152
Indirect materials (supplies) issued to various production departments	19
Direct manufacturing labor	96
Indirect manufacturing labor incurred by various production departments	34
Depreciation on plant and manufacturing equipment	28
Miscellaneous manufacturing overhead incurred (ordinarily would be detailed as repairs, utilities, etc., with a corresponding credit to various liability accounts)	13
Manufacturing overhead allocated, 3,000,000 actual machine-hours	?
Cost of goods manufactured	298
Revenues	410
Cost of goods sold	294

Required

1. Prepare an overview diagram of Donald Transport's job-costing system.
2. Prepare journal entries. Number your entries. Explanations for each entry may be omitted. Post to T-accounts. What is the ending balance of Work-in-Process Control?
3. Show the journal entry for disposing of under- or overallocated manufacturing overhead directly as a year-end writeoff to Cost of Goods Sold. Post the entry to T-accounts.
4. How did Donald Transport perform in 2014?

4-27 Job costing, unit cost, ending work in process. Rafael Company produces pipes for concert-quality organs. Each job is unique. In April 2013, it completed all outstanding orders, and then, in May 2013, it worked on only two jobs, M1 and M2:

Home Insert Page Layout Formulas Data

	A	B	C
1	**Rafael Company, May 2013**	**Job M1**	**Job M2**
2	Direct materials	$ 78,000	$ 51,000
3	Direct manufacturing labor	273,000	208,000

Direct manufacturing labor is paid at the rate of $26 per hour. Manufacturing overhead costs are allocated at a budgeted rate of $20 per direct manufacturing labor-hour. Only Job M1 was completed in May.

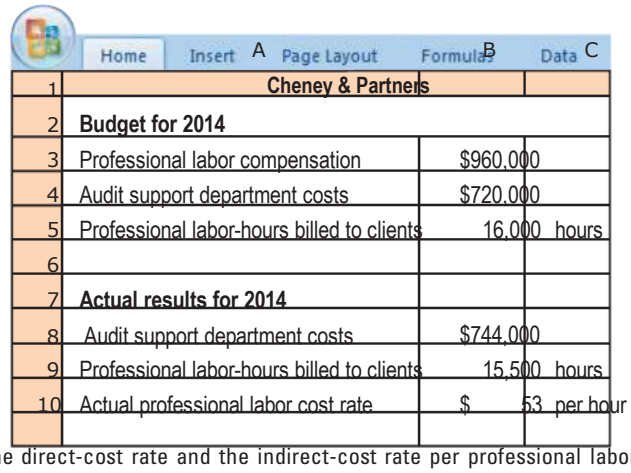
Required

1. Calculate the total cost for Job M1.
2. 1,100 pipes were produced for Job M1. Calculate the cost per pipe.
3. Prepare the journal entry transferring Job M1 to finished goods.
4. What is the ending balance in the Work-in-Process Control account?

4-28 Job costing; actual, normal, and variation from normal costing. Cheney & Partners, a Quebec-based public accounting partnership, specializes in audit services. Its job-costing system has a single direct-cost category (professional labor) and a single indirect-cost pool (audit support, which contains all costs of the

Audit Support Department). Audit support costs are allocated to individual jobs using actual professional labor-hours. Cheney & Partners employs 10 professionals to perform audit services.

Budgeted and actual amounts for 2014 are as follows:



	A	B	C
1	**Cheney & Partners**		
2	**Budget for 2014**		
3	Professional labor compensation	$960,000	
4	Audit support department costs	$720,000	
5	Professional labor-hours billed to clients	16,000	hours
6			
7	**Actual results for 2014**		
8	Audit support department costs	$744,000	
9	Professional labor-hours billed to clients	15,500	hours
10	Actual professional labor cost rate	$ 53	per hour

Required

1. Compute the direct-cost rate and the indirect-cost rate per professional labor-hour for 2014 under (a) actual costing, (b) normal costing, and (c) the variation from normal costing that uses budgeted rates for direct costs.
2. Which job-costing system would you recommend Cheney & Partners use? Explain.
3. Cheney's 2014 audit of Pierre & Co. was budgeted to take 170 hours of professional labor time. The actual professional labor time spent on the audit was 185 hours. Compute the cost of the Pierre & Co. audit using (a) actual costing, (b) normal costing, and (c) the variation from normal costing that uses budgeted rates for direct costs. Explain any differences in the job cost.

4-29 Job costing; variation on actual, normal, and variation from normal costing. Creative Solutions designs Web pages for clients in the education sector. The company's job-costing system has a single direct cost category (Web-designing labor) and a single indirect cost pool composed of all overhead costs. Overhead costs are allocated to individual jobs based on direct labor-hours. The company employs six Web designers. Budgeted and actual information regarding Creative Solutions follows:

Budget for 2014:	
Direct labor costs	$273,000
Direct labor-hours	10,500
Overhead costs	$157,500
Actual results for 2014:	
Direct labor costs	$285,000
Direct labor-hours	11,400
Overhead costs	$159,600

Required

1. Compute the direct cost rate and the indirect cost rate per Web-designing labor-hour for 2014 under (a) actual costing, (b) normal costing, and (c) the variation from normal costing that uses budgeted rates for direct costs.
2. Which method would you suggest Creative Solutions use? Explain.
3. Creative Solutions' Web design for Greenville Day School was budgeted to take 86 direct labor-hours. The actual time spent on the project was 79 hours. Compute the cost of the Greenville Day School job using (a) actual costing, (b) normal costing, and (c) the variation from normal costing that uses budgeted rates for direct cost.

4-30 Proration of overhead. The Ride-On-Wave Company (ROW) produces a line of non-motorized boats. ROW uses a normal-costing system and allocates manufacturing overhead using direct manufacturing labor cost. The following data are for 2014:

Budgeted manufacturing overhead cost	$125,000
Budgeted direct manufacturing labor cost	$250,000
Actual manufacturing overhead cost	$117,000
Actual direct manufacturing labor cost	$228,000

Inventory balances on December 31, 2014, were as follows:

Account	Ending balance	2014 direct manufacturing labor cost in ending balance
Work in process	$ 50,700	$ 20,520
Finished goods	245,050	59,280
Cost of goods sold	549,250	148,200

Required

1. Calculate the manufacturing overhead allocation rate.
2. Compute the amount of under- or overallocated manufacturing overhead.
3. Calculate the ending balances in work in process, finished goods, and cost of goods sold if under- or overallocated manufacturing overhead is as follows:
   a. Written off to cost of goods sold
   b. Prorated based on ending balances (before proration) in each of the three accounts
   c. Prorated based on the overhead allocated in 2014 in the ending balances (before proration) in each of the three accounts
4. Which method would you choose? Justify your answer.

Problems

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4-31 Job costing, accounting for manufacturing overhead, budgeted rates. The Pisano Company uses a job-costing system at its Dover, Delaware, plant. The plant has a machining department and a finishing department. Pisano uses normal costing with two direct-cost categories (direct materials and direct manufacturing labor) and two manufacturing overhead cost pools (the machining department with machine-hours as the allocation base and the finishing department with direct manufacturing labor costs as the allocation base). The 2014 budget for the plant is as follows:

	Machining Department	Finishing Department
Manufacturing overhead costs	$9,065,000	$8,181,000
Direct manufacturing labor costs	$ 970,000	$4,050,000
Direct manufacturing labor-hours	36,000	155,000
Machine-hours	185,000	37,000

Required

1. Prepare an overview diagram of Pisano's job-costing system.
2. What is the budgeted manufacturing overhead rate in the machining department? In the finishing department?
3. During the month of January, the job-cost record for Job 431 shows the following:

	Machining Department	Finishing Department
Direct materials used	$13,000	$ 5,000
Direct manufacturing labor costs	$ 900	$1,250
Direct manufacturing labor-hours	20	70
Machine-hours	140	20

   Compute the total manufacturing overhead cost allocated to Job 431.
4. Assuming that Job 431 consisted of 300 units of product, what is the cost per unit?
5. Amounts at the end of 2014 are as follows:

	Machining Department	Finishing Department
Manufacturing overhead incurred	$10,000,000	$7,982,000
Direct manufacturing labor costs	$ 1,030,000	$4,100,000
Machine-hours	200,000	34,000

   Compute the under- or overallocated manufacturing overhead for each department and for the Dover plant as a whole.
6. Why might Pisano use two different manufacturing overhead cost pools in its job-costing system?

4-32 Service industry, job costing, law firm. Kidman & Associates is a law firm specializing in labor relations and employee-related work. It employs 30 professionals (5 partners and 25 associates) who work directly with its clients. The average budgeted total compensation per professional for 2014 is $97,500. Each professional is budgeted to have 1,500 billable hours to clients in 2014. All professionals work for clients to their maximum 1,500 billable hours available. All professional labor costs are included in a single direct-cost category and are traced to jobs on a per-hour basis. All costs of Kidman & Associates other than professional labor costs are included in a single indirect-cost pool (legal support) and are allocated to jobs using professional labor-hours as the allocation base. The budgeted level of indirect costs in 2014 is $2,475,000.

Required

1. Prepare an overview diagram of Kidman's job-costing system.
2. Compute the 2014 budgeted direct-cost rate per hour of professional labor.
3. Compute the 2014 budgeted indirect-cost rate per hour of professional labor.
4. Kidman & Associates is considering bidding on two jobs:
   a. Litigation work for Richardson, Inc., which requires 120 budgeted hours of professional labor
   b. Labor contract work for Punch, Inc., which requires 160 budgeted hours of professional labor

   Prepare a cost estimate for each job.

4-33 Service industry, job costing, two direct- and two indirect-cost categories, law firm (continuation of 4-32). Kidman has just completed a review of its job-costing system. This review included a detailed analysis of how past jobs used the firm's resources and interviews with personnel about what factors drive the level of indirect costs. Management concluded that a system with two direct-cost categories (professional partner labor and professional associate labor) and two indirect-cost categories (general support and secretarial support) would yield more accurate job costs. Budgeted information for 2014 related to the two direct-cost categories is as follows:

	Professional Partner Labor	Professional Associate Labor
Number of professionals	5	25
Hours of billable time per professional	1,500 per year	1,500 per year
Total compensation (average per professional)	$210,000	$75,000

Budgeted information for 2014 relating to the two indirect-cost categories is as follows:

	General Support	Secretarial Support
Total costs	$2,025,000	$450,000
Cost-allocation base	Professional labor-hours	Partner labor-hours

Required

1. Compute the 2014 budgeted direct-cost rates for (a) professional partners and (b) professional associates.
2. Compute the 2014 budgeted indirect-cost rates for (a) general support and (b) secretarial support.
3. Compute the budgeted costs for the Richardson and Punch jobs, given the following information:

	Richardson, Inc.	Punch, Inc.
Professional partners	48 hours	32 hours
Professional associates	72 hours	128 hours

4. Comment on the results in requirement 3. Why are the job costs different from those computed in Problem 4-32?
5. Would you recommend Kidman & Associates use the job-costing system in Problem 4-32 or the job-costing system in this problem? Explain.

4-34 Proration of overhead. (Z. Iqbal, adapted) The Zaf Radiator Company uses a normal-costing system with a single manufacturing overhead cost pool and machine-hours as the cost-allocation base. The following data are for 2014:

Budgeted manufacturing overhead costs	$4,800,000
Overhead allocation base	Machine-hours
Budgeted machine-hours	80,000
Manufacturing overhead costs incurred	$4,900,000
Actual machine-hours	75,000

Machine-hours data and the ending balances (before proration of under- or overallocated overhead) are as follows:

	Actual Machine-Hours	2014 End-of-Year Balance
Cost of Goods Sold	60,000	$8,000,000
Finished Goods Control	11,000	1,250,000
Work-in-Process Control	4,000	750,000

Required

1. Compute the budgeted manufacturing overhead rate for 2014.
2. Compute the under- or overallocated manufacturing overhead of Zaf Radiator in 2014. Dispose of this amount using the following:
   a. Writeoff to Cost of Goods Sold
   b. Proration based on ending balances (before proration) in Work-in-Process Control, Finished Goods Control, and Cost of Goods Sold
   c. Proration based on the overhead allocated in 2014 (before proration) in the ending balances of Work-in-Process Control, Finished Goods Control, and Cost of Goods Sold
3. Which method do you prefer in requirement 2? Explain.

4-35 Normal costing, overhead allocation, working backward. Gardi Manufacturing uses normal costing for its job-costing system, which has two direct-cost categories (direct materials and direct manufacturing labor) and one indirect-cost category (manufacturing overhead). The following information is obtained for 2014:

- Total manufacturing costs, $8,300,000
- Manufacturing overhead allocated, $4,100,000 (allocated at a rate of 250% of direct manufacturing labor costs)
- Work-in-process inventory on January 1, 2014, $420,000
- Cost of finished goods manufactured, $8,100,000

Required

1. Use information in the first two bullet points to calculate (a) direct manufacturing labor costs in 2014 and (b) cost of direct materials used in 2014.
2. Calculate the ending work-in-process inventory on December 31, 2014.

4-36 Proration of overhead with two indirect cost pools. Premier Golf Carts makes custom golf carts that it sells to dealers across the Southeast. The carts are produced in two departments, fabrication (a mostly automated department) and custom finishing (a mostly manual department). The company uses a normal-costing system in which overhead in the fabrication department is allocated to jobs on the basis of machine-hours and overhead in the finishing department is allocated to jobs based on direct labor-hours. During May, Premier Golf Carts reported actual overhead of $49,500 in the fabrication department and $22,200 in the finishing department. Additional information follows:

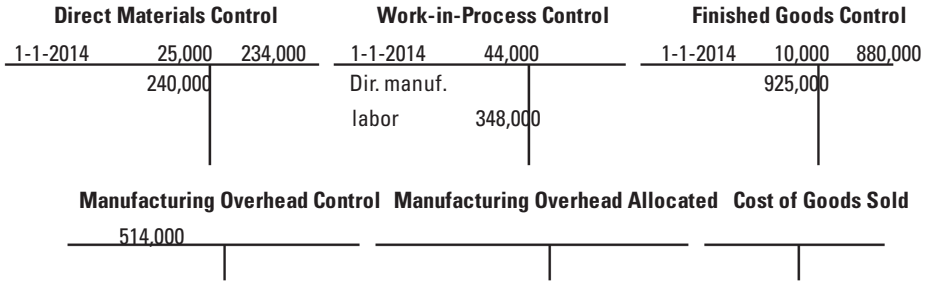
Manufacturing overhead rate (fabrication department)	$20 per machine-hour
Manufacturing overhead rate (finishing department)	$16 per direct labor-hour
Machine-hours (fabrication department) for May	2,000 machine-hours
Direct labor-hours (finishing department) for May	1,200 labor-hours
Work in process inventory, May 31	$50,000
Finished goods inventory, May 31	$150,000
Cost of goods sold, May	$300,000

Premier Golf Carts prorates under- and overallocated overhead monthly to work in process, finished goods, and cost of goods sold based on the ending balance in each account.

Required

1. Calculate the amount of overhead allocated in the fabrication department and the finishing department in May.
2. Calculate the amount of under- or overallocated overhead in each department and in total.
3. How much of the under- or overallocated overhead will be prorated to (a) work in process inventory, (b) finished goods inventory, and (c) cost of goods sold based on the ending balance (before proration) in each of the three accounts? What will be the balance in work in process, finished goods, and cost of goods sold after proration?
4. What would be the effect of writing off under- and overallocated overhead to cost of goods sold? Would it be reasonable for Premier Golf Carts to change to this simpler method?

4-37 General ledger relationships, under- and overallocation. (S. Sridhar, adapted) Southwick Company uses normal costing in its job-costing system. Partially completed T-accounts and additional information for Southwick for 2014 are as follows:



Additional information follows:

a. Direct manufacturing labor wage rate was $12 per hour.
b. Manufacturing overhead was allocated at $16 per direct manufacturing labor-hour.
c. During the year, sales revenues were $1,050,000, and marketing and distribution costs were $125,000.

Required

1. What was the amount of direct materials issued to production during 2014?
2. What was the amount of manufacturing overhead allocated to jobs during 2014?
3. What was the total cost of jobs completed during 2014?
4. What was the balance of work-in-process inventory on December 31, 2014?
5. What was the cost of goods sold before proration of under- or overallocated overhead?
6. What was the under- or overallocated manufacturing overhead in 2014?
7. Dispose of the under- or overallocated manufacturing overhead using the following:
   a. Writeoff to Cost of Goods Sold
   b. Proration based on ending balances (before proration) in Work-in-Process Control, Finished Goods Control, and Cost of Goods Sold
8. Using each of the approaches in requirement 7, calculate Southwick's operating income for 2014.
9. Which approach in requirement 7 do you recommend Southwick use? Explain your answer briefly.

4-38 Overview of general ledger relationships. Brandon Company uses normal costing in its job-costing system. The company produces custom bikes for toddlers. The beginning balances (December 1) and ending balances (as of December 30) in their inventory accounts are as follows:

	Beginning Balance 12/1	Ending Balance 12/31
Materials Control	$2,100	$ 8,500
Work-in-Process Control	6,700	9,000
Manufacturing Department Overhead Control	—	94,000
Finished Goods Control	4,400	19,400

Additional information follows:

a. Direct materials purchased during December were $66,300.
b. Cost of goods manufactured for December was $234,000.
c. No direct materials were returned to suppliers.
d. No units were started or completed on December 31 and no direct materials were requisitioned on December 31.
e. The manufacturing labor costs for the December 31 working day: direct manufacturing labor, $4,300, and indirect manufacturing labor, $1,400.
f. Manufacturing overhead has been allocated at 110% of direct manufacturing labor costs through December 31.

Required

1. Prepare journal entries for the December 31 payroll.
2. Use T-accounts to compute the following:
   a. The total amount of materials requisitioned into work in process during December
   b. The total amount of direct manufacturing labor recorded in work in process during December (Hint: You have to solve requirements **2b** and **2c** simultaneously)
   c. The total amount of manufacturing overhead recorded in work in process during December
   d. Ending balance in work in process, December 31
   e. Cost of goods sold for December before adjustments for under- or overallocated manufacturing overhead
3. Prepare closing journal entries related to manufacturing overhead. Assume that all under- or overallocated manufacturing overhead is closed directly to Cost of Goods Sold.

4-39 Allocation and proration of overhead. InStep Company prints custom training material for corporations. The business was started January 1, 2014. The company uses a normal-costing system. It has two direct cost pools, materials and labor, and one indirect cost pool, overhead. Overhead is charged to printing jobs on the basis of direct labor cost. The following information is available for 2014.

Budgeted direct labor costs	$225,000
Budgeted overhead costs	$315,000
Costs of actual material used	$148,500
Actual direct labor costs	$213,500
Actual overhead costs	$302,100

There were two jobs in process on December 31, 2014: Job 11 and Job 12. Costs added to each job as of December 31 are as follows:

	Direct materials	Direct labor
Job 11	$4,870	$5,100
Job 12	$5,910	$6,800

InStep Company has no finished goods inventories because all printing jobs are transferred to cost of goods sold when completed.

Required

1. Compute the overhead allocation rate.
2. Calculate the balance in ending work in process and cost of goods sold before any adjustments for under- or overallocated overhead.
3. Calculate under- or overallocated overhead.
4. Calculate the ending balances in work in process and cost of goods sold if the under- or overallocated overhead amount is as follows:
   a. Written off to cost of goods sold
   b. Prorated using the overhead allocated in 2014 (before proration) in the ending balances of cost of goods sold and work-in-process control accounts
5. Which of the methods in requirement 4 would you choose? Explain.

4-40 Job costing, contracting, ethics. Rand Company manufactures modular homes. The company has two main products that it sells commercially: a 1,000-square-foot, one-bedroom model and a 1,500-square-foot, two-bedroom model. The company recently began providing emergency housing (huts) to the Federal Emergency Management Agency (FEMA). The emergency housing is similar to the 1,000-square-foot model.

FEMA has requested Rand to create a bid for 150 emergency huts to be sent for wildfire victims in the West. Your manager has asked that you prepare this bid. In preparing the bid, you find a recent invoice to FEMA for 200 huts provided during the most recent hurricane season in the South. You also have a standard cost sheet for the 1,000-square-foot model sold commercially. Both are provided as follows:

Standard cost sheet: 1,000-sq.-ft., one-bedroom model

Direct materials		$9,500
Direct manufacturing labor	32 hours	704
Manufacturing overhead*	$3.50 per direct labor dollar	2,464
Total cost		$12,668
Retail markup on total cost		25%
Retail price		$15,835

INVOICE

DATE: September 15, 2014
BILL TO: FEMA
FOR: 200 Emergency Huts
SHIP TO: Sarasota, Florida

Direct materials	$2,090,000
Direct manufacturing labor**	164,400
Manufacturing overhead	575,400
Total cost	2,829,800
Government contract markup on total cost	20%
Total due	$3,395,760

Required

1. Calculate the total bid if you base your calculations on the standard cost sheet assuming a cost plus 20% government contract.
2. Calculate the total bid if you base your calculations on the September 15, 2014, invoice assuming a cost plus 20% government contract.
3. What are the main discrepancies between the bids you calculated in requirements 1 and 2?
4. What bid should you present to your manager? What principles from the IMA "Standards of Ethical Conduct for Practitioners of Management Accounting and Financial Management," as described in Chapter 1, should guide your decision? As the manager, what would you do?

4-41 Job costing—service industry. Jordan Brady schedules gigs for local bands and creates CDs and T-shirts to sell at each gig. Brady uses a normal-costing system with two direct-cost pools, labor and materials, and one indirect-cost pool, general overhead. General overhead is allocated to each gig based on 120% of direct labor cost. Actual overhead equaled allocated overhead as of March 2014. Actual overhead in April was $1,980. All costs incurred during the planning stage for a gig and during the gig are gathered in a balance sheet account called "Gigs in Progress (GIP)." When a gig is completed, the costs are transferred to an income statement account called "Cost of Completed Gigs (CCG)." Following is cost information for April 2014:

	From Beginning GIP		Incurred in April	
Band	**Materials**	**Labor**	**Materials**	**Labor**
Irok	$570	$750	$110	$200
Freke Out	700	550	140	100
Bottom Rung	250	475	310	250
Dish Towel	—	—	540	450
Rail Ride	—	—	225	250

*Overhead cost pool includes inspection labor ($15 per hour), setup labor ($12 per hour), and other indirect costs associated with production.
**Direct manufacturing labor includes 30 production hours per unit, 4 inspection hours per unit, and 6 setup hours per unit.

As of April 1, there were three gigs in progress: *Irok, Freke Out,* and *Bottom Rung.* The gigs for *Dish Towel* and *Rail Ride* were started during April. The gigs for *Freke Out* and *Dish Towel* were completed during April.

Required

1. Calculate GIP at the end of April.
2. Calculate CCG for April.
3. Calculate under- or overallocated overhead at the end of April.
4. Calculate the ending balances in GIP and CCG if the under- or overallocated overhead amount is as follows:
   a. Written off to CCG
   b. Prorated based on the ending balances (before proration) in GIP and CCG
   c. Prorated based on the overhead allocated in April in the ending balances of GIP and CCG (before proration)
5. Which method would you choose? Explain. Would your choice depend on whether overhead cost is underallocated or overallocated? Explain.

SOLUTIONS

CHAPTER 4
JOB COSTING

4-1 *Cost pool*—a grouping of individual indirect cost items.
Cost tracing—the assigning of direct costs to the chosen cost object.
Cost allocation—the assigning of indirect costs to the chosen cost object.
Cost-allocation base—a factor that links in a systematic way an indirect cost or group of indirect costs to cost objects.

4-2 In a *job-costing system,* costs are assigned to a distinct unit, batch, or lot of a product or service. In a *process-costing system,* the cost of a product or service is obtained by using broad averages to assign costs to masses of identical or similar units.

4-3 An advertising campaign for Pepsi is likely to be very specific to that individual client. Job costing enables all the specific aspects of each job to be identified. In contrast, the processing of checking account withdrawals is similar for many customers. Here, process costing can be used to compute the cost of each checking account withdrawal.

4-4 The seven steps in job costing are (1) identify the job that is the chosen cost object, (2) identify the direct costs of the job, (3) select the cost-allocation bases to use for allocating indirect costs to the job, (4) identify the indirect costs associated with each cost-allocation base, (5) compute the rate per unit of each cost-allocation base used to allocate indirect costs to the job, (6) compute the indirect costs allocated to the job, and (7) compute the total cost of the job by adding all direct and indirect costs assigned to the job.

4-5 Major cost objects that managers focus on in companies using job costing are a product such as a specialized machine, a service such as a repair job, a project such as running the Expo, or a task such as an advertising campaign.

4-6 Three major source documents used in job-costing systems are (1) job cost record or job cost sheet, a document that records and accumulates all costs assigned to a specific job, starting when work begins; (2) materials requisition record, a document that contains information about the cost of direct materials used on a specific job and in a specific department; and (3) labor-time sheet, a document that contains information about the amount of labor time used for a specific job in a specific department.

4-7 The main advantages of using computerized source documents for job cost records are the accuracy of the records and the ability to provide managers with instantaneous feedback to help control job costs.

4-8 Two reasons for using an annual budget period are

a. The numerator reason—the longer the time period, the less the influence of seasonal patterns in overhead costs, and
b. The denominator reason—the longer the time period, the less the effect of variations in output levels or quantities of the cost-allocation bases on the allocation of fixed costs.

4-9 Actual costing and normal costing differ in their use of actual or budgeted indirect cost rates:

	Actual Costing	**Normal Costing**
Direct-cost rates	Actual rates	Actual rates
Indirect-cost rates	Actual rates	Budgeted rates

Each costing method uses the actual quantity of the direct-cost input and the actual quantity of the cost-allocation base.

4-10 A house construction firm can use job cost information (1) to determine the profitability of individual jobs, (2) to assist in bidding on future jobs, and (3) to evaluate professionals who are in charge of managing individual jobs.

4-11 The statement is false. In a normal costing system, the Manufacturing Overhead Control account will not, in general, equal the amounts in the Manufacturing Overhead Allocated account. The Manufacturing Overhead Control account aggregates the actual overhead costs incurred while Manufacturing Overhead Allocated allocates overhead costs to jobs on the basis of a *budgeted rate* times the actual quantity of the cost-allocation base.

Underallocation or overallocation of indirect (overhead) costs can arise because of (1) the Numerator reason—the actual overhead costs differ from the budgeted overhead costs, or (2) the Denominator reason—the actual quantity used of the allocation base differs from the budgeted quantity.

4-12 Debit entries to Work-in-Process Control represent increases in work in process. Examples of debit entries under normal costing are (1) direct materials used (credit to Materials Control), (2) direct manufacturing labor billed to job (credit to Wages Payable Control), and (3) manufacturing overhead allocated to job (credit to Manufacturing Overhead Allocated).

4-13 Alternative ways to make end-of-period adjustments to dispose of underallocated or overallocated overhead are as follows:

(i) Proration based on the total amount of indirect costs allocated (before proration) in the ending balances of work in process, finished goods, and cost of goods sold
(ii) Proration based on total ending balances (before proration) in work in process, finished goods, and cost of goods sold
(iii) Year-end write-off to Cost of Goods Sold
(iv) The adjusted allocation rate approach that restates all overhead entries using actual indirect cost rates rather than budgeted indirect cost rates

4-14 A company might use budgeted costs rather than actual costs to compute direct labor rates because it may be difficult to trace direct labor costs to jobs as they are completed (for example, because bonuses are only known at the end of the year).

4-15 Modern technology of electronic data interchange (EDI) is helpful to managers because it ensures that a purchase order is transmitted quickly and accurately to suppliers with minimum paperwork and costs.

4-16 (10 min) **Job order costing, process costing.**

a. Job costing
b. Process costing
c. Job costing
d. Process costing
e. Job costing
f. Process costing
g. Job costing
h. Job costing
i. Process costing
j. Process costing
k. Job costing
l. Job costing
m. Process costing
n. Job costing
o. Job costing
p. Job costing
q. Job costing
r. Job costing
s. Job costing
t. Process costing
u. Job costing

4-17 (20 min.) **Actual costing, normal costing, accounting for manufacturing overhead.**

1. $$\text{Budgeted manufacturing overhead rate} = \frac{\text{Budgeted manufacturing overhead costs}}{\text{Budgeted direct manufacturing labor costs}}$$

$$= \frac{\$2,700,000}{\$1,500,000} = 1.80 \text{ or } 180\%$$

$$\text{Actual manufacturing overhead rate} = \frac{\text{Actual manufacturing overhead costs}}{\text{Actual direct manufacturing labor costs}}$$

$$= \frac{\$2,755,000}{\$1,450,000} = 1.9 \text{ or } 190\%$$

2. Costs of Job 626 under actual and normal costing follow:

	Actual Costing	Normal Costing
Direct materials	$ 40,000	$ 40,000
Direct manufacturing labor costs	30,000	30,000
Manufacturing overhead costs		
$30,000 × 1.90; $30,000 × 1.80	57,000	54,000
Total manufacturing costs of Job 626	$127,000	$124,000

3. Total manufacturing overhead allocated under normal costing = Actual manufacturing labor costs × Budgeted overhead rate

= $1,450,000 × 1.80

= $2,610,000

Underallocated manufacturing overhead = Actual manufacturing overhead costs − Manufacturing overhead allocated

= $2,755,000 − $2,610,000 = $145,000

There is no under- or overallocated overhead under actual costing because overhead is allocated under actual costing by multiplying actual manufacturing labor costs and the actual manufacturing overhead rate. This, of course, equals the actual manufacturing overhead costs. All actual overhead costs are allocated to products. Hence, there is no under- or overallocated overhead.

4. Managers at Destin Products might prefer to use normal costing because it enables them to use the budgeted manufacturing overhead rate determined at the beginning of the year to estimate the cost of a job as soon as the job is completed. Managers want to know job costs for ongoing uses, including pricing jobs, monitoring and managing costs, evaluating the success of the job, learning about what did and did not work, bidding on new jobs, and preparing interim financial statements. Under actual costing, managers would only determine the cost of a job at the end of the year when they know actual manufacturing overhead costs.

4-18 (20 -30 min.) **Job costing, normal and actual costing.**

1. Budgeted indirect-cost rate $= \frac{\text{Budgeted indirect costs (assembly support)}}{\text{Budgeted direct labor-hours}} = \frac{\$8,000,000}{160,000 \text{ hours}}$

$= \$50$ per direct labor-hour

Actual indirect-cost rate $= \frac{\text{Actual indirect costs (assembly support)}}{\text{Actual direct labor-hours}} = \frac{\$7,614,000}{162,000 \text{ hours}}$

$= \$47$ per direct labor-hour

These rates differ because both the numerator and the denominator in the two calculations are different—one based on budgeted numbers and the other based on actual numbers.

2a.

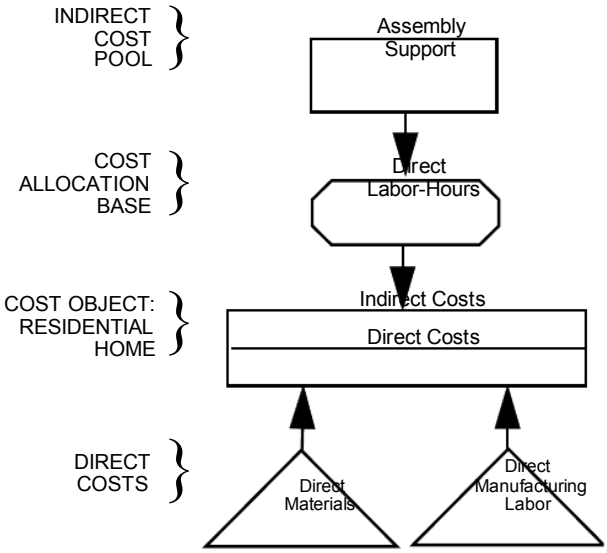
	Laguna Model	**Mission Model**
Normal costing		
Direct costs		
Direct materials	$106,650	$127,970
Direct labor	36,276	41,750
	142,926	169,720
Indirect costs		
Assembly support ($50 × 920; $50 × 1,040)	46,000	52,000
Total costs	$188,926	$221,720

2b. Actual costing

Direct costs		
Direct materials	$106,650	$127,970
Direct labor	36,276	41,750
	142,926	169,720
Indirect costs		
Assembly support ($47 × 920; $47 × 1,040)	43,240	48,880
Total costs	$186,166	$218,600

3. Normal costing enables Anderson to report a job cost as soon as the job is completed, assuming that both the direct materials and direct labor costs are known at the time of use. Once the 920 direct labor-hours are known for the Laguna Model (June 2014), Anderson can compute the $188,926 cost figure using normal costing. Anderson can use this information to manage the costs of the Laguna Model job as well as to bid on similar jobs later in the year. In contrast, Anderson has to wait until the December 2014 year-end to compute the $186,166 cost of the Laguna Model using actual costing.

Although not required, the following overview diagram summarizes Anderson Construction's job-costing system.



4-19 (10 min.) **Budgeted manufacturing overhead rate, allocated manufacturing overhead.**

1. Budgeted manufacturing overhead rate $= \dfrac{\text{Budgeted manufacturing overhead}}{\text{Budgeted machine hours}}$

$= \dfrac{\$4,200,000}{175,000 \text{ machine-hours}} = \$24 \text{ per machine-hour}$

2. $\text{Manufacturing overhead allocated} = \text{Actual machine-hours} \times \text{Budgeted manufacturing overhead rate}$

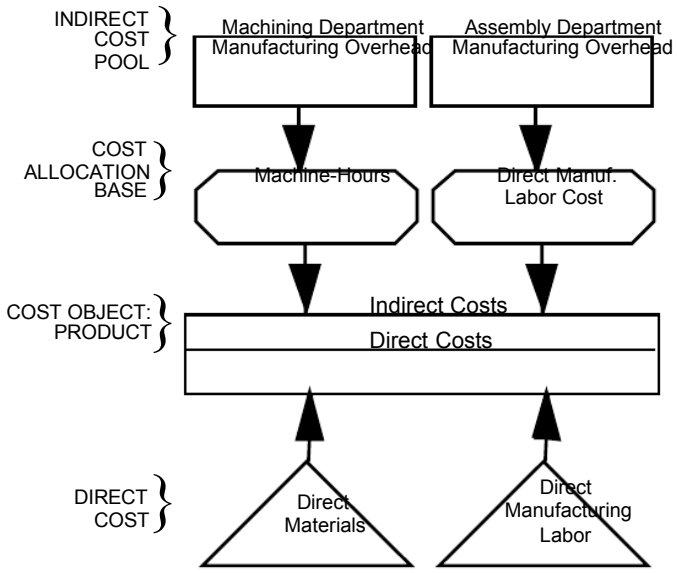
$= 170,000 \times \$24 = \$4,080,000$

3. Because manufacturing overhead allocated is greater than the actual manufacturing overhead costs, Gammaro calculates overallocated manufacturing overhead as follows:

Manufacturing overhead allocated	$4,080,000
Actual manufacturing overhead costs	4,050,000
Overallocated manufacturing overhead	$ 30,000

4-20 (20-30 min.) **Job costing, accounting for manufacturing overhead, budgeted rates.**

1. An overview of the product costing system is



Budgeted manufacturing overhead divided by allocation base:

Machining Department overhead: $\frac{\$1{,}800{,}000}{50{,}000}$ = \$36 per machine-hour

Assembly Department overhead: $\frac{\$3{,}600{,}000}{\$2{,}000{,}000}$ = 180% of direct manuf. labor costs

2.

Machining department overhead allocated, 2,000 hours × \$36	\$72,000
Assembly department overhead allocated, 180% × \$15,000	27,000
Total manufacturing overhead allocated to Job 494	\$99,000

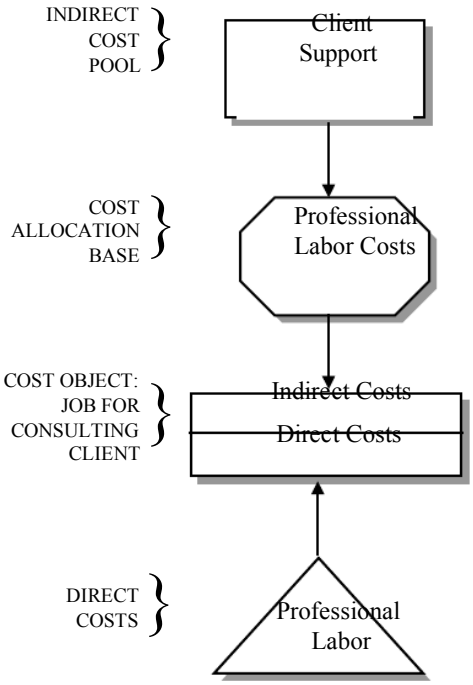
3.

	Machining Dept.	Assembly Dept.
Actual manufacturing overhead	\$2,100,000	\$ 3,700,000
Manufacturing overhead allocated,		
\$36 × 55,000 machine-hours	1,980,000	—
180% × \$2,200,000	—	3,960,000
Underallocated (Overallocated)	\$ 120,000	\$ (260,000)

4-21 (20–25 min.) **Job costing, consulting firm.**

1. Budgeted indirect-cost rate for client support can be calculated as follows:

   Budgeted indirect-cost rate = $13,000,000 ÷ $5,000,000 = 260% of professional labor costs



2. At the budgeted revenues of $20,000,000 Taylor's operating income of $2,000,000 equals 10% of revenues.

   Markup rate = $20,000,000 ÷ $5,000,000 = 400% of direct professional labor costs

3. Budgeted costs

Direct costs:		
Director, $200 × 3	$ 600	
Partner, $100 × 16	1,600	
Associate, $50 × 40	2,000	
Assistant, $30 × 160	4,800	$ 9,000
Indirect costs:		
Consulting support, 260% × $9,000		23,400
Total costs		$32,400

As calculated in requirement 2, the bid price to earn a 10% income-to-revenue margin is 400% of direct professional costs. Therefore, Taylor should bid 4 × $9,000 = $36,000 for the Tasty Chicken job.

Bid price to earn target operating income-to-revenue margin of 10% can also be calculated as follows:

Let R = revenue to earn target income
R – 0.10R = $32,400
0.90R = $32,400
R = $32,400 ÷ 0.90 = $36,000

Or

Direct costs	$ 9,000
Indirect costs	23,400
Operating income (0.10 × $36,000)	3,600
Bid price	$36,000

4-22 (15–20 min.) **Time period used to compute indirect cost rates.**

1.

		Quarter				
		1	**2**	**3**	**4**	**Annual**
(1)	Pools sold	565	490	245	100	1,400
(2)	Direct manufacturing labor hours (1× Row 1)	565	490	245	100	1,400
(3)	Fixed manufacturing overhead costs	$12,250	$12,250	$12,250	$12,250	$49,000
(4)	Budgeted fixed manufacturing overhead rate per direct manufacturing labor hour ($12,250 ÷ Row 2)	$21.68	$25	$50	$122.50	$35

	Budgeted Costs Based on Quarterly Manufacturing Overhead Rate	
	2nd Quarter	**3rd Quarter**
Direct material costs ($14 × 490 pools; 245 pools)	$ 6,860	$ 3,430
Direct manufacturing labor costs ($20 × 490 hours; 245 hours)	9,800	4,900
Variable manufacturing overhead costs ($15 × 490 hours; 245 hours)	7,350	3,675
Fixed manufacturing overhead costs ($25 × 490 hours; $50 × 245 hours)	12,250	12,250
Total manufacturing costs	$36,260	$24,255
Divided by pools manufactured each quarter	÷ 490	÷ 245
Manufacturing cost per pool	$ 74.00	$ 99.00

2.

	Budgeted Costs Based on Annual Manufacturing Overhead Rate	
	2nd Quarter	**3rd Quarter**
Direct material costs ($14 × 490 pools; 245 pools)	$ 6,860	$ 3,430
Direct manufacturing labor costs ($20 × 490 hours; 245 hours)	9,800	4,900
Variable manufacturing overhead costs ($15 × 490 hours; 245 hours)	7,350	3,675
Fixed manufacturing overhead costs ($35 × 490 hours; 75 hours)	17,150	8,575
Total manufacturing costs	$41,160	$20,580
Divided by pools manufactured each quarter	÷ 490	÷ 245
Manufacturing cost per pool	$ 84.00	$84.00

3.

	2nd Quarter	3rd Quarter
Prices based on quarterly budgeted manufacturing overhead rates calculated in requirement 1 ($74.00 × 130%; $99.00 × 130%)	$96.20	$128.70
Price based on annual budgeted manufacturing overhead rates calculated in requirement 2 ($84.00 × 130%; $84.00 × 130%)	$109.20	$109.20

Socha might be seeing large fluctuations in the prices of its pools because Plunge is determining budgeted manufacturing overhead rates on a quarterly rather than an annual basis. Plunge should use the budgeted annual manufacturing overhead rate because capacity decisions are based on longer annual periods rather than quarterly periods. Prices should not vary based on quarterly fluctuations in production. Plunge could vary prices based on market conditions and demand for its pools. In this case, Plunge would charge higher prices in quarter 2 when demand for its pools is high. Pricing based on quarterly budgets would cause Plunge to do the opposite—to decrease rather than increase prices!

4-23 (10–15 min.) **Accounting for manufacturing overhead.**

1. Budgeted manufacturing overhead rate $= \frac{\$4,400,000}{200{,}000 \text{ labor-hours}}$

$= \$22$ per direct labor-hour

2.

Work-in-Process Control	4,664,000	
Manufacturing Overhead Allocated		4,664,000

(212,000 direct labor-hours × $22 per direct labor-hour = $4,664,000)

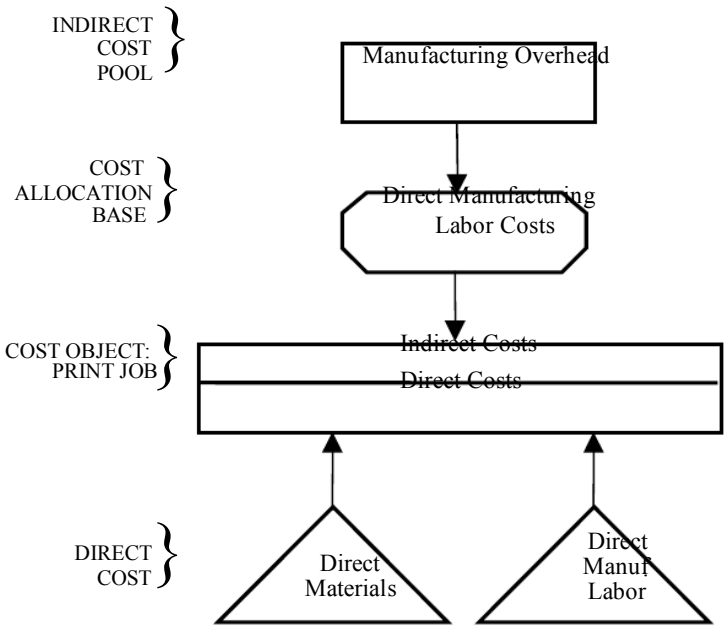
3. $4,650,000– $4,664,000 = $74,000 overallocated, an insignificant amount of difference compared to manufacturing overhead costs allocated $14,000 ÷ $4,664,000 = 0.3%. If the quantities of work-in-process and finished goods inventories are small, the difference between proration and write off to Cost of Goods Sold account would be very small compared to net income.

Manufacturing Overhead Allocated	4,664,000	
Manufacturing Department Overhead Control		4.650,000
Cost of Goods Sold		14,000

4-24 (35–45 min.) **Job costing, journal entries.**

Some instructors may also want to assign Exercise 4-25. It demonstrates the relationships of the general ledger to the underlying subsidiary ledgers and source documents.

1. An overview of the product costing system is:



2. & 3.
This answer assumes COGS given of $4,020 does not include the writeoff of overallocated manufacturing overhead.

2.

(1)	Materials Control	800	
	Accounts Payable Control		800
(2)	Work-in-Process Control	710	
	Materials Control		710
(3)	Manufacturing Overhead Control	100	
	Materials Control		100
(4)	Work-in-Process Control	1,300	
	Manufacturing Overhead Control	900	
	Wages Payable Control		2,200
(5)	Manufacturing Overhead Control	400	
	Accumulated Depreciation—buildings and manufacturing equipment		400
(6)	Manufacturing Overhead Control	550	
	Miscellaneous accounts		550
(7)	Work-in-Process Control	2,080	
	Manufacturing Overhead Allocated ($1.60 \times \$1,300 = \$2,080$)		2,080
(8)	Finished Goods Control	4,120	
	Work-in-Process Control		4,120
(9)	Accounts Receivable Control (or Cash)	8,000	
	Revenues		8,000
(10)	Cost of Goods Sold	4,020	
	Finished Goods Control		4,020
(11)	Manufacturing Overhead Allocated	2,080	
	Manufacturing Overhead Control		1,950
	Cost of Goods Sold		130

3.

Materials Control

Bal. 1/1/2011	100	(2) Work-in-Process Control (Materials used)	710
(1) Accounts Payable Control (Purchases)	800	(3) Manufacturing Overhead Control (Materials used)	100
Bal. 12/31/2011	90		

Work-in-Process Control

Bal. 1/1/2011	60	(8) Finished Goods Control (Goods completed)	4,120
(2) Materials Control (Direct materials)	710		
(4) Wages Payable Control (Direct manuf. labor)	1,300		
(7) Manuf. Overhead Allocated	2,080		
Bal. 12/31/2011	30		

Finished Goods Control

Bal. 1/1/2011	500	(10) Cost of Goods Sold	4,020
(8) WIP Control (Goods completed)	4,120		
Bal. 12/31/2011	600		

Cost of Goods Sold

(10) Finished Goods Control (Goods sold)	4,020	(11) Manufacturing Overhead Allocated (Adjust for overallocation)	130
Bal. 12/31/2011	3,890		

Manufacturing Overhead Control

(3) Materials Control (Indirect materials)	100	(11) To close	1,950
(4) Wages Payable Control (Indirect manuf. labor)	900		
(5) Accum. Deprn. Control (Depreciation)	400		
(6) Accounts Payable Control (Miscellaneous)	550		
Bal.	0		

Manufacturing Overhead Allocated

(11) To close	2,080	(7) Work-in-Process Control (Manuf. overhead allocated)	2,080
		Bal.	0

4. Gross margin = Revenues Cost of goods sold = $8,000 $3,890 = $4,110. This is a very good profit margin of 51% ($4,110 ÷ $8,000) indicating that University of Chicago Press performed very well in 2014. (Gross margins above 30% are generally considered very good.) It also accurately budgeted for manufacturing overhead costs resulting in a very small overallocation.

4-25 (35 minutes) **Journal entries, T-accounts, and source documents**.

1.

i. Direct Materials Control	122,000	
Accounts Payable Control		122,000

Source Document: Purchase Invoice, Receiving Report
Subsidiary Ledger: Direct Materials Record, Accounts Payable

ii. Work in Process Control[a]	118,800	
Direct Materials Control		118,800

Source Document: Material Requisition Records, Job Cost Record
Subsidiary Ledger: Direct Materials Record, Work-in-Process Inventory Records by Jobs

iii. Work in Process Control	83,000	
Manufacturing Overhead Control	54,000	
Wages Payable Control		137,000

Source Document: Labor Time Sheets, Job Cost Records
Subsidiary Ledger: Manufacturing Overhead Records, Employee Labor Records, Work-in-Process Inventory Records by Jobs

iv. Manufacturing Overhead Control	148,900	
Salaries Payable Control		29,000
Accounts Payable Control		9,900
Accumulated Depreciation Control		32,000
Rent Payable Control		78,000

Source Document: Depreciation Schedule, Rent Schedule, Maintenance wages due, Invoices for miscellaneous factory overhead items
Subsidiary Ledger: Manufacturing Overhead Records

v. Work in Process Control	215,800	
Manufacturing Overhead Allocated ($83,000 × $2.60)		215,800

Source Document: Labor Time Sheets, Job Cost Record
Subsidiary Ledger: Work-in-Process Inventory Records by Jobs

vi. Finished Goods Control[b]	400,900	
Work in Process Control		400,900

Source Document: Job Cost Record, Completed Job Cost Record
Subsidiary Ledger: Work-in-Process Inventory Records by Jobs, Finished Goods Inventory Records by Jobs

vii. Cost of Goods Sold[c]	441,900	
Finished Goods Control		441,900

Source Document: Sales Invoice, Completed Job Cost Record
Subsidiary Ledger: Finished Goods Inventory Records by Jobs

viii. Manufacturing Overhead Allocated	215,800	
Manufacturing Overhead Control		
($54,000 + $148,900)		202,900
Cost of Goods Sold		12,900

Source Document: Prior Journal Entries

ix. Administrative Expenses	7,900	
Marketing Expenses	127,000	
Salaries Payable Control		33,000
Accounts Payable Control		94,000
Accumulated Depreciation, Office Equipment		7,900

Source Document: Depreciation Schedule, Marketing Payroll Request, Invoice for Advertising, Sales Commission Schedule.

Subsidiary Ledger: Employee Salary Records, Administration Cost Records, Marketing Cost Records.

[a]Materials used = Beginning direct materials inventory + Purchases – Ending direct materials inventory

= $9,800 + $122,000 – $13,000 = $118,800

[b] Cost of goods manufactured = Beginning WIP inventory + Manufacturing cost – Ending WIP inventory

= $6,300 + ($118,800 + $83,000 + $215,800) – $23,000 = $400,900

[c]Cost of goods sold = Beginning finished goods inventory + Cost of goods manufactured – Ending finished goods inventory

= $68,000 + $400,900 – $27,000 = $441,900

2. T-accounts

Direct Materials Control

Bal. 1/1/2011	9,800	(2) Work-in-Process Control (Materials used)	118,800
(1) Accounts Payable Control (Purchases)	122,000		
Bal. 12/31/2011	13,000		

Work-in-Process Control

Bal. 1/1/2011	6,300	(6) Finished Goods Control (Cost of goods manufactured)	400,900
(2) Materials Control (Direct materials used)	118,800		
(3) Wages Payable Control (Direct manuf. labor)	83,000		
(5) Manuf. Overhead Allocated	215,800		
Bal. 12/31/2011	23,000		

Finished Goods Control

Bal. 1/1/2011	68,000	(7) Cost of Goods Sold	441,900
(6) WIP Control (Cost of goods manuf.)	400,900		
Bal. 12/31/2011	27,000		

Cost of Goods Sold

(7) Finished Goods Control (Goods sold)	441,900	(8) Manufacturing Overhead Allocated (Adjust for overallocation)	12,900

Manufacturing Overhead Control

(3) Wages Payable Control (Indirect manuf. labor)	54,000	(8) To close	202,900
(4) Salaries Payable Control (Maintenance)	29,000		
(4) Accounts Payable Control (Miscellaneous)	9,900		
(4) Accum. Deprn. Control (Depreciation)	32,000		
(4) Rent Payable Control (Rent)	78,000		
Bal.	0		

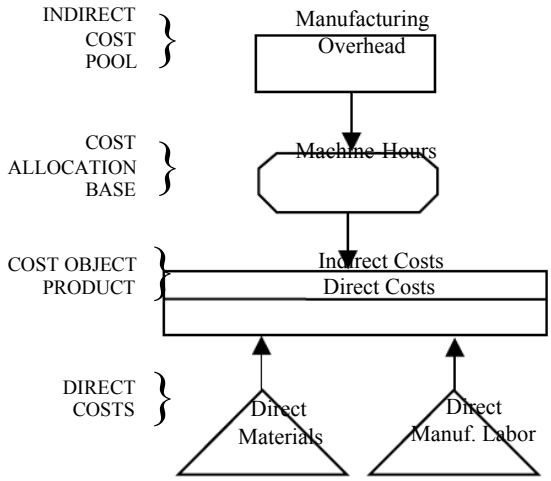
Manufacturing Overhead Allocated

(8) To close	215,800	(5) Work-in-Process Control (Manuf. overhead allocated)	215,800
		Bal.	0

4-26 (45 min.) **Job costing, journal entries.**

Some instructors may wish to assign Problem 4-25. It demonstrates the relationships of journal entries, general ledger, subsidiary ledgers, and source documents.

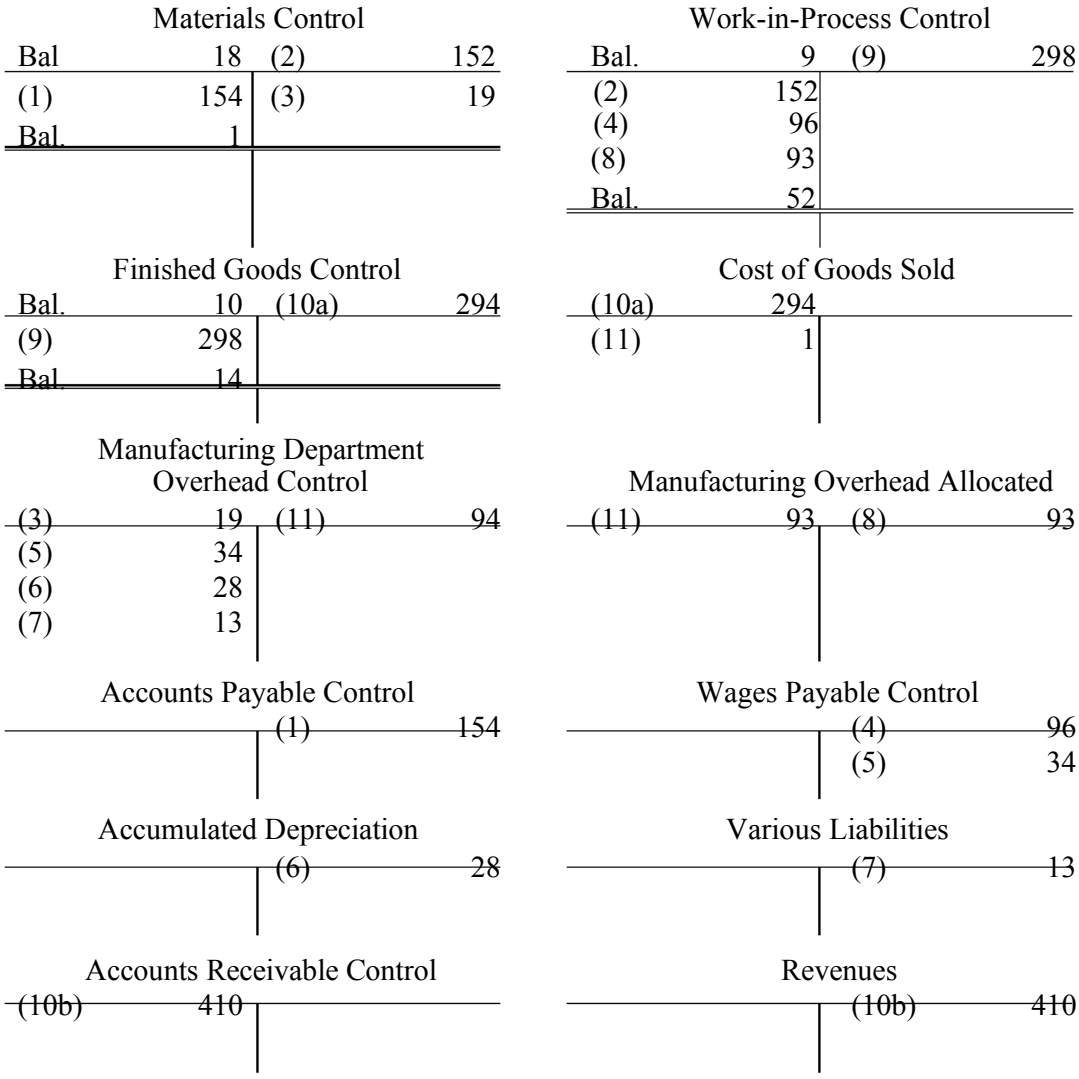
1. An overview of the product-costing system is



2. Amounts in millions.

(1)	Materials Control	154	
	Accounts Payable Control		154
(2)	Work-in-Process Control	152	
	Materials Control		152
(3)	Manufacturing Department Overhead Control	19	
	Materials Control		19
(4)	Work-in-Process Control	96	
	Wages Payable Control		96
(5)	Manufacturing Department Overhead Control	34	
	Wages Payable Control		34
(6)	Manufacturing Department Overhead Control	28	
	Accumulated Depreciation		28
(7)	Manufacturing Department Overhead Control	13	
	Various liabilities		13
(8)	Work-in-Process Control	93	
	Manufacturing Overhead Allocated		93
(9)	Finished Goods Control	298	
	Work-in-Process Control		298
(10a)	Cost of Goods Sold	294	
	Finished Goods Control		294
(10b)	Accounts Receivable Control (or Cash)	410	
	Revenues		410

The posting of entries to T-accounts is as follows:



The ending balance of Work-in-Process Control is $52 million.

3. (11) Manufacturing Overhead Allocated 93
Cost of Goods Sold 1
Manufacturing Department Overhead Control 94

Entry posted to T-accounts in Requirement 2.

4. Gross margin = Revenues – Cost of goods sold = $410 – $295 = $115.
Donald Transport's gross margin of 28% ($115 ÷ $410) is relatively small, indicating Donald Transport did fine but not particularly well in 2014. (Gross margins below 30% are generally considered small.) A company manufacturing prestige manufactured homes should have higher gross margins.

4-27 (15 min.) **Job costing, unit cost, ending work in progress.**

1.

Direct manufacturing labor rate per hour	$26
Manufacturing overhead cost allocated per manufacturing labor-hour	$20

	Job M1	Job M2
Direct manufacturing labor costs	$273,000	$208,000
Direct manufacturing labor-hours ($273,000 ÷ $26; $208,000 ÷ $26)	10,500	8,000
Manufacturing overhead cost allocated (10,500 × $20; 8,000 × $20)	$210,000	$160,000

Job Costs May 2011	**Job M1**	**Job M2**
Direct materials	$ 78,000	$ 51,000
Direct manufacturing labor	273,000	208,000
Manufacturing overhead allocated	210,000	160,000
Total costs	$561,000	$419,000

2.

Number of pipes produced for Job M1	1,100
Cost per pipe ($561,000 ÷ 1,100)	$510

3.

Finished Goods Control	561,000	
Work-in-Process Control		561,000

4. Rafael Company began May 2013 with no work-in-process inventory. During May, it started and finished M1. It also started M2, which is still in work-in-process inventory at the end of May. M2's manufacturing costs up to this point, $419,000, remain as a debit balance in the Work-in-Process Inventory account at the end of May 2013.

4-28 (20–30 min.) **Job costing; actual, normal, and variation from normal costing.**

1. Actual direct cost rate for professional labor = $53 per professional labor-hour

$$\text{Actual indirect cost rate} = \frac{\$744{,}000}{15{,}500 \text{ hours}} = \$48 \text{ per professional labor-hour}$$

$$\text{Budgeted direct cost rate for professional labor} = \frac{\$960{,}000}{16{,}000 \text{ hours}} = \$60 \text{ per professional labor-hour}$$

$$\text{Budgeted indirect cost rate} = \frac{\$720{,}000}{16{,}000 \text{ hours}} = \$45 \text{ per professional labor-hour}$$

	(a) Actual Costing	(b) Normal Costing	(c) Variation of Normal Costing
Direct-Cost Rate	$53 (Actual rate)	$53 (Actual rate)	$60 (Budgeted rate)
Indirect-Cost Rate	$48 (Actual rate)	$45 (Budgeted rate)	$45 (Budgeted rate)

2. Cheney & Partners should choose a job-costing system based on the direct cost information available to them. If Cheney knows direct costs as the jobs are being done, I would recommend Cheney use normal costing over actual costing by calculating a budgeted indirect cost rate to cost jobs. Normal costing enables Cheney to use the budgeted indirect cost rate calculated at the beginning of the year to estimate the cost of a job as soon as the job is completed. Cheney can use knowledge of job costs for ongoing uses, including pricing jobs, monitoring and managing costs, evaluating the success of the job, learning about what did and did not work, bidding on new jobs, and preparing interim financial statements. Under actual costing, Cheney would only determine the cost of a job at the end of the year when actual indirect costs are known. To be useful, of course, the budgeted indirect cost rate and the allocated costs need to reasonably approximate the actual indirect cost rate and the actual costs.

If Cheney does not know direct costs as the jobs are being completed, I would recommend that Cheney use the variation of normal costing that calculates a budgeted direct cost rate. This would allow Cheney to estimate costs on a more-timely basis and gain all the benefits discussed earlier in the context of indirect costs. However, if Cheney does use the variation of normal costing, it needs to do a better job of estimating the budgeted direct cost rate. Currently, the budgeted direct cost rate ($60) is much greater than the actual rate of $53 per professional labor hour. If the difference is too large, the budgeted costs allocated to jobs will not approximate the actual costs incurred.

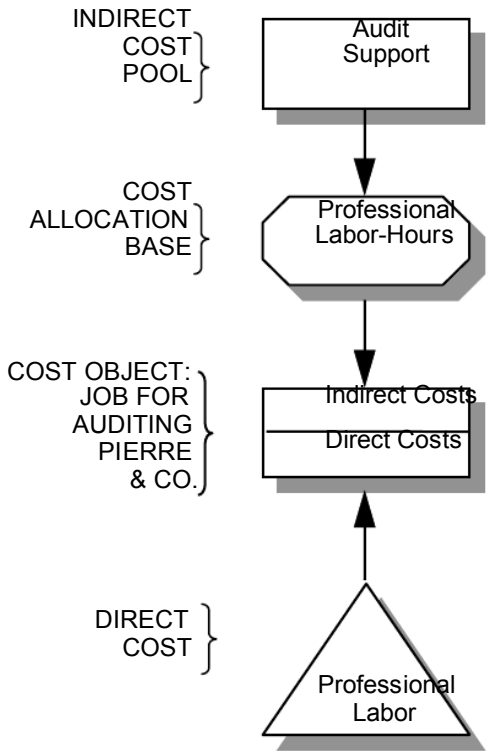
3.

	(a) Actual Costing	(b) Normal Costing	(c) Variation of Normal Costing
Direct Costs	$53 × 185 = $ 9,805	$53 × 185 = $ 9,805	$60 × 185 = $11,100
Indirect Costs	$48 × 185 = 8,880	$45 × 185 = 8,325	$45 × 185 = 8,325
Total Job Costs	$18,685	$18,130	$19,425

All three costing systems use the actual professional labor time of 185 hours. The budgeted 170 hours for the Pierre Enterprises audit job is not used in job costing. However, Cheney may have used the 170 hour number in bidding for the audit.

The actual costing figure of $18,685 is greater than the normal costing figure of $18,130 because the actual indirect-cost rate ($48) is more than the budgeted indirect-cost rate ($45). The normal costing figure of $18,130 is less than the variation of normal costing (based on budgeted rates for direct costs) figure of $19,425 because the actual direct-cost rate ($53) is less than the budgeted direct-cost rate ($60).

Although not required, the following overview diagram summarizes Cheney's job-costing system.



4-29 (20–30 min.) **Job costing; actual, normal, and variation from normal costing.**

1. Actual direct-labor hour rate = $\frac{\$285,000}{11,400}$ = \$25 per direct labor-hour

Actual indirect cost rate = $\frac{\$159,600}{11,400}$ = \$14 per direct labor-hour

Budgeted direct labor-hour rate = $\frac{\$273,000}{10,500}$ = \$26 per direct labor-hour

Budgeted indirect cost rate = $\frac{\$157,500}{10,500}$ = \$15 per direct labor-hour

	(a) Actual Costing	(b) Normal Costing	(c) Variation of Normal Costing
Direct-Cost Rate	\$25 (Actual rate)	\$25 (Actual rate)	\$26 (Budgeted rate)
Indirect-Cost Rate	\$14 (Actual rate)	\$15 (Budgeted rate)	\$15 (Budgeted rate)

2. Creative Solutions should choose a job-costing system based on the direct cost information available to them. If Creative Solutions knows direct costs as the jobs are being done, I would recommend Creative Solutions use normal costing over actual costing by calculating a budgeted indirect cost rate to cost jobs. Normal costing enables Creative Solutions to use the budgeted indirect cost rate calculated at the beginning of the year to estimate the cost of a job as soon as the job is completed. Creative Solutions can use knowledge of job costs for ongoing uses, including pricing jobs, monitoring and managing costs, evaluating the success of the job, learning about what did and did not work, bidding on new jobs, and preparing interim financial statements. Under actual costing, Creative Solutions would only determine the cost of a job at the end of the year when actual indirect costs are known. To be useful, of course, the budgeted indirect cost rate and the allocated costs need to reasonably approximate the actual indirect cost rate and the actual costs.

If Creative Solutions does not know direct costs as the jobs are being completed, I would recommend that Creative Solutions use the variation of normal costing that calculates a budgeted direct cost rate. This would allow Creative Solutions to estimate costs on a more-timely basis and gain all the benefits discussed earlier in the context of indirect costs. However, if Creative Solutions does use the variation of normal costing, it needs to continue to do a good job of estimating the budgeted direct cost rate. Currently, the budgeted direct cost rate (\$26) is very close to the actual rate of \$25 per direct labor-hour.

3.

	(a) Actual Costing	(b) Normal Costing	(c) Variation of Normal Costing
Direct Costs	\$25 × 79 = \$1,975	\$25 × 79 = \$1,975	\$26 × 79 = \$2,054
Indirect Costs	\$14 × 79 = 1,106	\$15 × 79 = 1,185	\$15 × 79 = 1,185
Total Job Costs	\$3,081	\$3,160	\$3,239

All three costing systems use the actual direct labor-hours of 79 hours. The budgeted 86 hours for the Greenville Day School job is not used in job costing. However, Creative Solutions may have used the budgeted number of hours in bidding for the job.

4-30 (30 min.) **Proration of overhead.**

1. $$\text{Budgeted manufacturing overhead rate} = \frac{\text{Budgeted manufacturing overhead cost}}{\text{Budgeted direct manufacturing labor cost}}$$

$$= \frac{\$125,000}{\$250,000} = 50\% \text{ of direct manufacturing labor cost}$$

2. Overhead allocated = 50% × Actual direct manufacturing labor cost
= 50% × $228,000 = $114,000

$$\text{Underallocated manufacturing overhead} = \text{Actual manufacturing overhead costs} - \text{Allocated plant overhead costs}$$

$$= \$117,000 - \$114,000 = \$3,000$$

Underallocated manufacturing overhead = $3,000

3a. All underallocated manufacturing overhead is written off to cost of goods sold.

Both work-in-process (WIP) and finished goods inventory remain unchanged.

Account	Dec. 31, 2014 Balance (Before Proration) (1)	Proration of $3,000 Underallocated Manuf. Overhead (2)	Dec. 31, 2014 Balance (After Proration) (3) = (1) + (2)
WIP	$ 50,700	$ 0	$ 50,700
Finished Goods	245,050	0	245,050
Cost of Goods Sold	549,250	3,000	552,250
Total	$845,000	$3,000	$848,000

3b. Underallocated manufacturing overhead prorated based on ending balances:

Account	Dec. 31, 2014 Account Balance (Before Proration) (1)	Account Balance as a Percent of Total (2) = (1) ÷ $845,000	Proration of $3,000 Underallocated Manuf. Overhead (3) = (2) × $3,000	Dec. 31, 2014 Account Balance (After Proration) (4) = (1) + (3)
WIP	$ 50,700	0.06	0.06 × $3,000 = $ 180	$ 50,880
Finished Goods	245,050	0.29	0.29 × $3,000 = 870	245,920
Cost of Goods Sold	549,250	0.65	0.65 × $3,000 = 1,950	551,200
Total	$845,000	1.00	$3,000	$848,000

3c. Underallocated manufacturing overhead prorated based on 2014 overhead in ending balances:

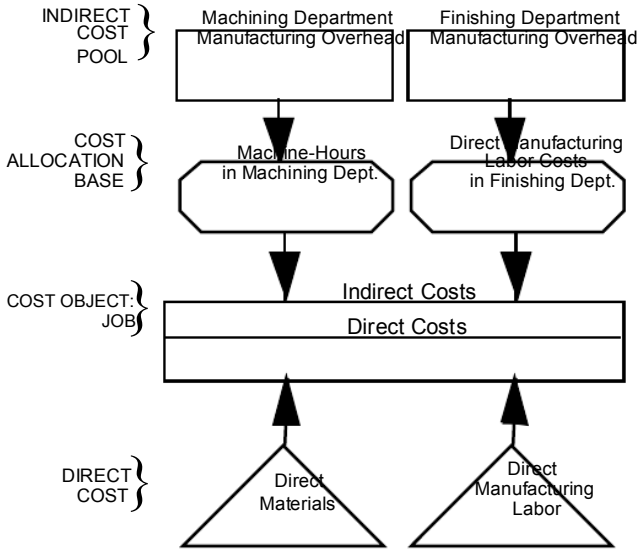
Account	Dec. 31, 2014 Account Balance (Before Proration) (1)	Allocated Manuf. Overhead in Dec. 31, 2014 Balance (Before Proration) (2)	Allocated Manuf. Overhead in Dec. 31, 2014 Balance as a Percent of Total (3) = (2) ÷ $114,000	Proration of $3,000 Underallocated Manuf. Overhead (4) = (3) ×$3,000	Dec. 31, 2014 Account Balance (After Proration) (5) = (1) + (4)
WIP	$ 50,700	$ 10,260[a]	0.09	0.09 × $3,000 = $ 270	$ 50,970
Finished Goods	245,050	29,640[b]	0.26	0.26 × $3,000 = 780	245,830
Cost of Goods Sold	549,250	74,100[c]	0.65	0.65 × $3,000 = 1,950	551,200
Total	$845,000	$114,000	1.00	$3,000	$848,000

[a,b,c] Overhead allocated = Direct manuf. labor cost ×50% = $20,520; $59,280; $148,200 ×50%

4. Writing off all of the underallocated manufacturing overhead to Cost of Goods Sold (CGS) is usually warranted when CGS is large relative to Work-in-Process and Finished Goods Inventory and the underallocated manufacturing overhead is immaterial. Both these conditions apply in this case. ROW should write off the $3,000 underallocated manufacturing overhead to Cost of Goods Sold Account.

4-31 (20–30 min) **Job costing, accounting for manufacturing overhead, budgeted rates.**

1. An overview of the job-costing system is:



2. Budgeted manufacturing overhead divided by allocation base:

   a. Machining Department:

$$\frac{\$9{,}065{,}000}{185{,}000 \text{ machine-hours}} = \$49 \text{ per machine-hour}$$

   b. Finishing Department:

$$\frac{\$8{,}181{,}000}{\$4{,}050{,}000} = 202\% \text{ of direct manufacturing labor costs}$$

3. Machining Department overhead, $49 × 140 machine-hours $6,860
   Finishing Department overhead, 202% of $1,250 2,525
   Total manufacturing overhead allocated $9,385

4. Total costs of Job 431:

Direct costs:		
Direct materials—Machining Department	$13,000	
—Finishing Department	5,000	
Direct manufacturing labor —Machining Department	900	
—Finishing Department	1,250	$20,150
Indirect costs:		
Machining Department overhead, $49 × 140	$ 6,860	
Finishing Department overhead, 202% of $1,250	2,525	9,385
Total costs		$29,535

The per-unit product cost of Job 431 is $29,535 ÷ 300 units = $98.45 per unit

The point of this part is (a) to get the definitions straight and (b) to underscore that overhead is allocated by multiplying the actual amount of the allocation base by the budgeted rate.

5.

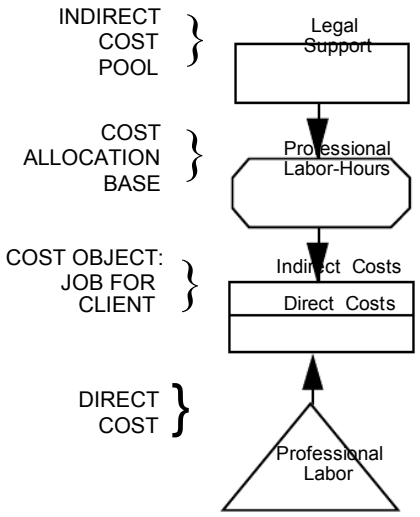
	Machining	**Finishing**
Manufacturing overhead incurred (actual)	$10,000,000	$7,982,000
Manufacturing overhead allocated		
200,000 hours × $49	9,800,000	
202% of $4,100,000		8,282,000
Underallocated manufacturing overhead	$ 200,000	
Overallocated manufacturing overhead		$ 300,000

Total overallocated overhead = $300,000 – $200,000 = $100,000

6. A homogeneous cost pool is one where all costs have the same or a similar cause-and-effect or benefits-received relationship with the cost-allocation base. Pisano likely assumes that all its manufacturing overhead cost items are not homogeneous. Specifically, those in the Machining Department have a cause-and-effect relationship with machine-hours, while those in the Finishing Department have a cause-and-effect relationship with direct manufacturing labor costs. Pisano believes that the benefits of using two cost pools (more accurate product costs and better ability to manage costs) exceed the costs of implementing a more complex system.

4-32 (15–20 min.) **Service industry, job costing, law firm.**

1.



2. $$\text{Budgeted professional labor-hour direct cost rate} = \frac{\text{Budgeted direct labor compensation per professional}}{\text{Budgeted direct labor-hours per professional}}$$

$$= \frac{\$97{,}500}{1{,}500 \text{ hours}}$$

$$= \$65 \text{ per professional labor-hour}$$

Note that the budgeted professional labor-hour direct-cost rate can also be calculated by dividing total budgeted professional labor costs of $2,925,000 ($97,500 per professional × 30 professionals) by total budgeted professional labor-hours of 45,000 (1,500 hours per professional × 30 professionals), $2,925,000 ÷ 45,000 = $65 per professional labor-hour.

3. $$\text{Budgeted indirect cost rate} = \frac{\text{Budgeted total costs in indirect cost pool}}{\text{Budgeted total professional labor-hours}}$$

$$= \frac{\$2{,}475{,}000}{1{,}500 \text{ hours per professional} \times 30 \text{ professionals}}$$

$$= \frac{\$2{,}475{,}000}{45{,}000 \text{ hours}}$$

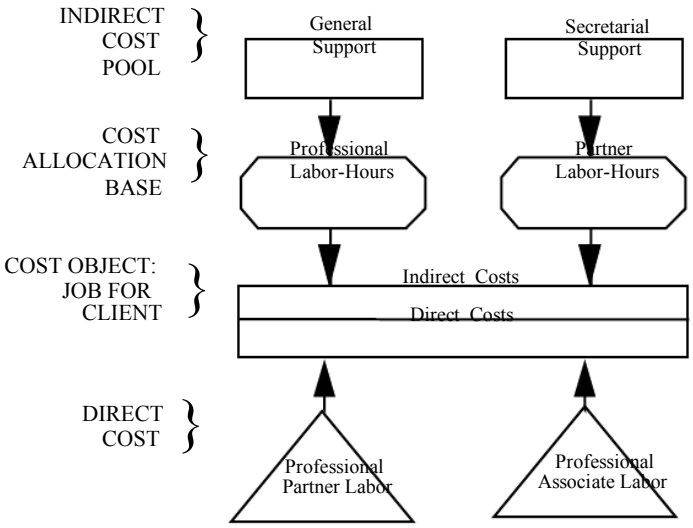
$$= \$55 \text{ per professional labor-hour}$$

4.

	Richardson	**Punch**
Direct costs:		
Professional labor, $65 × 120; $65 × 160	$ 7,800	$10,400
Indirect costs:		
Legal support, $55 × 120; $55 × 160	6,600	8,800
	$14,400	$19,200

4-33 (25–30 min.) **Service industry, job costing, two direct- and indirect-cost categories, law firm (continuation of 4-32).**

Although not required, the following overview diagram is helpful to understand Kidman's job-costing system.



1.

	Professional Partner Labor	Professional Associate Labor
Budgeted compensation per professional	$ 210,000	$75,000
Divided by budgeted hours of billable time per professional	÷1,500	÷1,500
Budgeted direct-cost rate	$140 per hour*	$50 per hour†

*Can also be calculated as $\frac{\text{Total budgeted partner labor costs}}{\text{Total budgeted partner labor - hours}} = \frac{\$210{,}000 \times 5}{1{,}500 \times 5} = \frac{\$1{,}050{,}000}{7{,}500} = \$140$

†Can also be calculated as $\frac{\text{Total budgeted associate labor costs}}{\text{Total budgeted associate labor - hours}} = \frac{\$75{,}000 \times 25}{1{,}500 \times 25} = \frac{\$1{,}875{,}000}{37{,}500} = \$50$

2.

	General Support	Secretarial Support
Budgeted total costs	$2,025,000	$450,000
Divided by budgeted quantity of allocation base	÷ 45,000 hours	÷ 7,500 hours
Budgeted indirect cost rate	$45 per hour	$60 per hour

3.

	Richardson		Punch	
Direct costs:				
Professional partners, $140 × 48 hr.; $140 × 32 hr.	$6,720		$4,480	
Professional associates, $50 × 72 hr.; $50 × 128 hr.	3,600		6,400	
Direct costs		$10,320		$10,880
Indirect costs:				
General support, $45 × 120 hr.; $45 × 160 hr.	5,400		7,200	
Secretarial support, $60 × 48 hr.; $60 × 32 hr.	2,880		1,920	
Indirect costs		8,280		9,120
Total costs		$18,600		$20,000

4.

	Richardson	Punch
Single direct – Single indirect (from Problem 4-32)	$14,400	$19,200
Multiple direct – Multiple indirect (from requirement 3 of Problem 4-33)	18,600	20,000
Difference	$ 4,200 undercosted	$ 800 undercosted

The Richardson and Punch jobs differ in their use of resources. The Richardson job has a mix of 40% partners and 60% associates, while Punch has a mix of 20% partners and 80% associates. Thus, the Richardson job is a relatively high user of the more costly partner-related resources (both direct partner costs and indirect partner secretarial support). The Punch job, on the other hand, has a mix of partner and associate-related hours (1:4) that is only slightly higher than the mix of partner and associate hours for the firm as a whole (1:5). The refined-costing system in Problem 4-33 increases the reported cost in Problem 4-32 for the Richardson job by 29.17% (from $14,400 to $18,600) and the Punch job by a much smaller 4.17% (from $19,200 to $20,000).

5. I would recommend that Kidman & Associates use the job costing system in this problem with two direct- and two indirect- cost categories.

Kidman & Associates should use multiple categories of direct costs (partner labor and professional labor) because the costs of the different categories of labor are very different and different jobs use these direct labor resources in different proportions. The system with only one direct cost would be accurate only if all jobs used partner-labor and professional-labor in the same proportion, which is clearly not the case. Using a single direct-cost category would undercost (overcost) jobs that have a high (low) proportion of partner-labor.

Kidman should use multiple indirect cost pools because partners use additional secretarial support resources that professionals do not use. With a single indirect cost pool as in problem 4-32, jobs that use proportionately greater (fewer) partner labor-hours are not assigned the extra (lower) costs of supporting these partners and are undercosted (overcosted).

The job costing system in this problem more accurately represents the costs incurred on different jobs and therefore helps managers make better decisions.

4-34 (20–25 min.) **Proration of overhead.**

1. Budgeted manufacturing overhead rate is $4,800,000 ÷ 80,000 hours = $60 per machine-hour.

2. Manufacturing overhead underallocated = Manufacturing overhead incurred − Manufacturing overhead allocated
= $4,900,000 – $4,500,000*
= $400,000

*$60 × 75,000 actual machine-hours = $4,500,000

a. Write-off to Cost of Goods Sold

Account (1)	Dec. 31, 2014 Account Balance (Before Proration) (2)	Write-off of $400,000 Underallocated Manufacturing Overhead (3)	Dec. 31, 2014 Account Balance (After Proration) (4) = (2) + (3)
Work in Process	$ 750,000	$ 0	$ 750,000
Finished Goods	1,250,000	0	1,250,000
Cost of Goods Sold	8,000,000	400,000	8,400,000
Total	$10,000,000	$400,000	$10,400,000

b. Proration based on ending balances (before proration) in Work in Process, Finished Goods, and Cost of Goods Sold.

Account (1)	Dec. 31, 2014 Account Balance (Before Proration) (2)		Proration of $400,000 Underallocated Manufacturing Overhead (3)	Dec. 31, 2014 Account Balance (After Proration) (4) = (2) + (3)
Work in Process	$ 750,000	(7.5%)	0.075 × $400,000 = $ 30,000	$ 780,000
Finished Goods	1,250,000	(12.5%)	0.125 × $400,000 = 50,000	1,300,000
Cost of Goods Sold	8,000,000	(80.0%)	0.800 × $400,000 = 320,000	8,320,000
Total	$10,000,000	100.0%	$400,000	$10,400,000

c. Proration based on the allocated overhead amount (before proration) in the ending balances of Work in Process, Finished Goods, and Cost of Goods Sold.

Account (1)	Dec. 31, 2014 Account Balance (Before Proration) (2)	Allocated Overhead Included in Dec. 31, 2014 Account Balance (Before Proration) (3)		Proration of $400,000 Underallocated Manufacturing Overhead (5)	Dec. 31, 2014 Account Balance (After Proration) (6) = (2) + (5)
Work in Process	$ 750,000	$ 240,000[a]	(5.33%)	0.0533 × $400,000 = $ 21,320	$ 771,320
Finished Goods	1,250,000	660,000[b]	(14.67%)	0.1467 × $400,000 = 58,680	1,308,680
Cost of Goods Sold	8,000,000	3,600,000[c]	(80.00%)	0.8000 × $400,000 = 320,000	8,320,000
Total	$10,000,000	$4,500,000	100.00%	$400,000	$10,400,000

[a] $60 × 4,000 machine-hours; [b] $60 × 11,000 machine-hours; [c] $60 × 60,000 machine-hours

3. Alternative (c) is theoretically preferred over (a) and (b) because the underallocated amount and the balances in work-in-process and finished goods inventories are material. Alternative (c) yields the same ending balances in work in process, finished goods, and cost of goods sold that would have been reported had actual indirect cost rates been used.

Chapter 4 also discusses an adjusted allocation rate approach that results in the same ending balances as does alternative (c). This approach operates via a restatement of the indirect costs allocated to all the individual jobs worked on during the year using the actual indirect cost rate.

4-35 (15 min.) **Normal costing, overhead allocation, working backward.**

1a. Manufacturing overhead allocated = 250% × Direct manufacturing labor costs

$$\$4{,}100{,}000 = 2.50 \times \text{Direct manufacturing labor costs}$$

$$\text{Direct manufacturing labor costs} = \frac{\$4{,}100{,}000}{2.50} = \$1{,}640{,}000$$

b. Total manufacturing cost = Cost of direct materials used + Direct manufacturing labor cost + Manufacturing overhead allocated

$$\$8{,}300{,}000 = \text{Cost of direct materials used} + \$1{,}640{,}000 + \$4{,}100{,}000$$

$$\text{Cost of direct materials used} = \$2{,}560{,}000$$

2. Work in process 1/1/2014 + Total manufacturing cost = Cost of goods manufactured + Work in process 12/31/2014

Denote Work in process on 12/31/2014 by X

$$\$420{,}000 + \$8{,}300{,}000 = \$8{,}100{,}000 + X$$

$$X = \$620{,}000$$

Work-in-process inventory, 12/31/14 = $620,000.

4-36 (15 min.) **Proration of overhead with two indirect cost pools.**

1. Fabrication department:
Overhead allocated = $20 per machine-hour × 2,000 machine-hours = $40,000

Finishing department:
Overhead allocated = $16 per direct labor-hour × 1,200 direct labor-hours = $19,200

2. Under- or overallocated overhead in each department and in total follows:
Fabrication department:
$49,500 actual overhead – $40,000 allocated = $9,500 underallocated

Finishing department:
$22,200 actual overhead – $19,200 allocated = $3,000 underallocated

Total underallocated overhead = $9,500 + $3,000 = $12,500

3. Underallocated overhead prorated based on ending balances

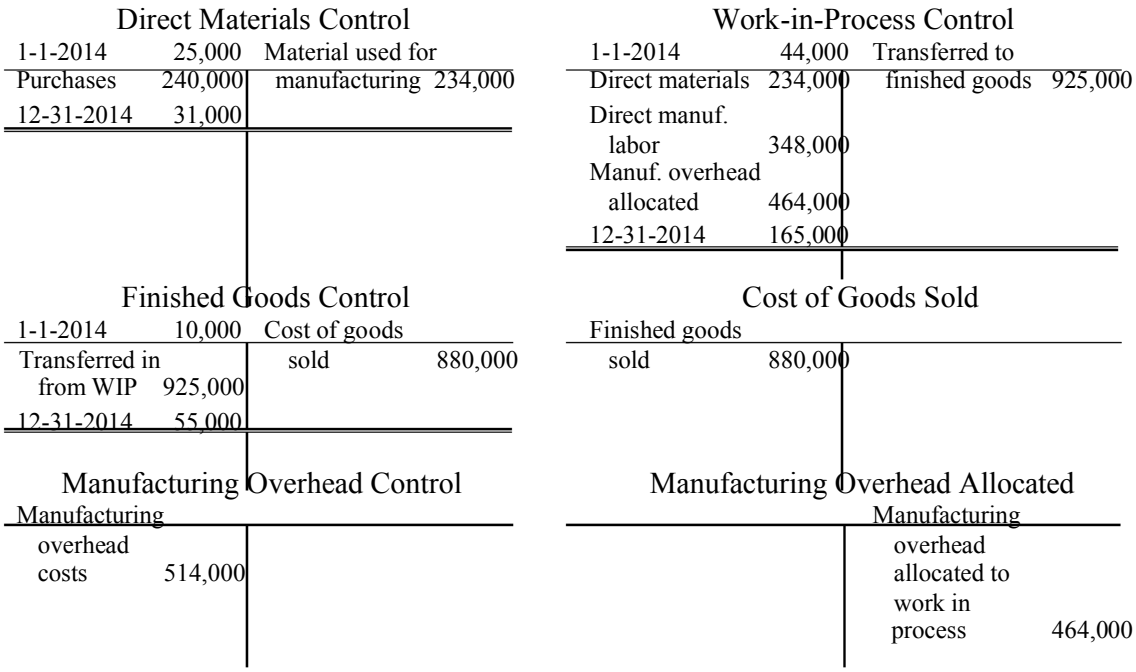
Account	Account Balance (Before Proration) (1)	Account Balance as a Percent of Total (2) = (1) ÷ $500,000	Proration of $12,500 Underallocated Overhead (3) = (2) ×12,500	Account Balance (After Proration) (4) = (1) + (3)
Work in Process	$ 50,000	0.10	0.10 ×$12,500 = $ 1,250	$ 51,250
Finished Goods	150,000	0.30	0.30 ×$12,500 = 3,750	153,750
Cost of Goods Sold	300,000	0.60	0.60 ×$12,500 = 7,500	307,500
Total	$500,000	1.00	$12,500	$512,500

Because Premier Golf Carts is disposing of underallocated costs based on the ending balance in Work in Process, Finished Goods, and Cost of Goods Sold accounts, it does not have to allocate the underallocated overhead from each department separately. Had Premier Golf Carts disposed of the underallocated overhead based on the overhead allocated in the ending balances in each of the three accounts, it would have to dispose of the underallocated overhead in the Fabrication Department and the underallocated overhead in the Finishing Department separately.

4. The ending balance in Cost of Goods Sold would be $312,500 instead of $307,500 if the entire $12,500 amount of underallocated overhead was written off to Cost of Goods Sold account. Cost of Goods Sold would increase by 1.6% ($312,500 – $307,500) ÷ $307,500. Because this is an insignificant amount, it would be reasonable to use the simpler method of charging off to Cost of Goods Sold.

4-37 (35 min.) **General ledger relationships, under- and overallocation.**

The solution assumes all materials used are direct materials. A summary of the T-accounts for Southwick Company before adjusting for under- or overallocation of overhead follows:



1. From Direct Materials Control T-account,
Direct materials issued to production = $234,000 that appears as a credit.

2. Direct manufacturing labor-hours $= \dfrac{\text{Direct manufacturing labor costs}}{\text{Direct manufacturing wage rate per hour}}$

$= \dfrac{\$348{,}000}{\$12 \text{ per hour}} = 29{,}000 \text{ hours}$

Manufacturing overhead allocated $=$ Direct manufacturing labor hours $\times$ Manufacturing overhead rate

$=$ 29,000 hours $\times$ $16 per hour = $464,000

3. From the debit entry to Finished Goods T-account,
Cost of jobs completed and transferred from WIP = $925,000

4. From Work-in-Process T-account,

Work in process inventory on 12/31/2014 = $44,000 + $234,000 + $348,000 + $464,000 –$925,000

= $165,000

5. From the credit entry to Finished Goods Control T-account, Cost of goods sold (before proration) = $880,000

6. Manufacturing overhead underallocated = Debits to Manufacturing Overhead Control – Credit to Manufacturing Overhead Allocated
= $514,000 – $464,000
= $50,000 underallocated

7. a. Write-off to Cost of Goods Sold will increase (debit) Cost of Goods Sold by $50,000. Hence, Cost of Goods Sold = $880,000 + $50,000 = $930,000.
b. Proration based on ending balances (before proration) in Work in Process, Finished Goods, and Cost of Goods Sold.

Account balances in each account after proration follows:

Account (1)	Account Balance (Before Proration) (2)		Proration of $50,000 Underallocated Manufacturing Overhead (3)	Account Balance (After Proration) (4) = (2) + (3)
Work in Process	$ 165,000	(15%)	0.15 × $50,000 = $ 7,500	$ 172,500
Finished Goods	55,000	(5%)	0.05 × $50,000 = 2,500	57,500
Cost of Goods Sold	880,000	(80%)	0.80 × $50,000 = 40,000	920,000
	$1,100,000	100%	$50,000	$1,150,000

8. Needham's operating income using write-off to Cost of Goods Sold and Proration based on ending balances (before proration) follows:

	Write-off to Cost of Goods Sold	Proration Based on Ending Balances
Revenues	$1,050,000	$1,050,000
Cost of goods sold	930,000	920,000
Gross margin	120,000	130,000
Marketing and distribution costs	125,000	125,000
Operating income/(loss)	$ (5,000)	$ 5,000

9. If the purpose is to report the most accurate inventory and cost of goods sold figures, the preferred method is to prorate based on the manufacturing overhead allocated component in the inventory and cost of goods sold accounts. Proration based on the balances in Work in Process, Finished Goods, and Cost of Goods Sold will equal the proration based on the manufacturing overhead allocated component if the proportions of direct costs to manufacturing overhead costs are constant in the Work in Process, Finished Goods, and Cost of Goods Sold accounts. Even if this is not the case, the prorations based on Work in Process, Finished Goods, and Cost of Goods Sold will better approximate the results if actual cost rates had been used rather than the write-off to Cost of Goods Sold method.

Another consideration in Needham's decision about how to dispose of underallocated manufacturing overhead is the effects on operating income. The write-off to Cost of Goods Sold will lead to an operating loss. Proration based on the balances in Work in Process, Finished Goods, and Cost of Goods Sold will help Needham avoid the loss and show an operating income.

The main merit of the write-off to Cost of Goods Sold method is its simplicity. However, accuracy and the effect on operating income favor the preferred and recommended proration approach.

4-38 (40–55 min.) **Overview of general ledger relationships.**

Note: In some print versions of the text, the second column heading appears as "Ending Balance 12/31." The second column heading in the problem should be "Ending Balance 12/30" and not "Ending Balance 12/31."

1. Adjusting entry for 12/31 payroll.

(a)	Work-in-Process Control	4,300	
	Manufacturing Department Overhead Control	1,400	
	Wages Payable Control		5,700
	To recognize payroll costs		
(b)	Work-in-Process Control	4,730	
	Manufacturing Overhead Allocated		4,730
	To allocate manufacturing overhead at 110% × $4,300 = $4,730 on $4,300 of direct manufacturing labor incurred on 12/31		

Note: Students tend to forget entry (b) entirely. Stress that a budgeted overhead allocation rate is used consistently throughout the year. This point is a major feature of this problem.

2. a-e An effective approach to this problem is to draw T-accounts and insert all the known figures. Then, working with T-account relationships, solve for the unknown figures. Entries (a) and (b) are posted into the T-accounts that follow.

Materials Control

Beginning balance 12/1	2,100		
Purchases	66,300	59,900[a]	Materials requisitioned
Balance 12/30	8,500		

[a] $2,100 + $66,300 – $8,500 = $59,900

(a) Direct materials requisitioned into work in process during December equals $59,900 because no materials are requisitioned on December 31.

Work-in-Process Control

Beginning balance 12/1		6,700		
Direct materials	$59,900			
Direct manf. labor	84,000[b]			
Manf. overhead allocated	92,400[b]	236,300	234,000	Cost of goods manufactured
Balance 12/30		9,000		
(a) Direct manuf. labor 12/31 payroll		4,300		
(b) Manuf. overhead allocated 12/31		4,730[c]		
Ending balance 12/31		18,030		

[b] Direct manufacturing labor and manufacturing overhead allocated are unknown. Let x = Direct manufacturing labor up to 12/30 payroll, then manufacturing overhead allocated up to 12/30 payroll = $1.10x$

Use the T-account equation and solve for x:

$$\$6{,}700 + \$59{,}900 + x + 1.10x - \$234{,}000 = \$9{,}000$$
$$2.10x = \$9{,}000 - \$6{,}700 - \$59{,}900 + \$234{,}000 = \$176{,}400$$
$$x = \frac{\$176{,}400}{2.1} = \$84{,}000$$

Direct manufacturing labor up to 12/30 payroll = $84,000

Manufacturing overhead allocated up to 12/30 = 1.10 × $84,000 = $92,400

Total direct manufacturing labor for December = $84,000 + $4,300 (direct manufacturing labor for 12/31 calculated in requirement 1) = $88,300

Total manufacturing overhead allocated for December = $92,400 + $4,730[c] = $97,130

[c] $4,300 × 110% = $4,730, manufacturing overhead allocated on $4,300 of direct manufacturing labor incurred on 12/31.

(b) Total direct manufacturing labor for December = $88,300.

(c) Total manufacturing overhead allocated (recorded) in work in process equals $97,130.

(d) Ending balance in work-in-process inventory on December 31 equals $9,000 + $4,300 (direct manufacturing labor added on 12/31, requirement 1) + $4,730 (manufacturing overhead allocated on 12/31, requirement 1) = $18,030.

An alternative approach to solving requirements 2b, 2c, and 2d is to calculate the work-in-process inventory on December 31, recognizing that because no new units were started or completed, no direct materials were added and the direct manufacturing labor and manufacturing overhead allocated on December 31 were added to the work-in-process inventory balance of December 30.

Work-in-process inventory on 12/31	=	Work-in-process inventory on 12/30	+	Direct manufacturing labor incurred on 12/31	+	Manufacturing overhead allocated on 12/31

$$= \$9{,}000 + \$4{,}300 + \$4{,}730$$
$$= \$18{,}030$$

We can now use the T-account equation for work-in-process inventory account from 12/1 to 12/31, as follows.

Let x = Direct manufacturing labor for December

Then $1.10x$ = Manufacturing overhead allocated for December

Work-in-process inventory on 12/1	+	Direct materials added in December	+	Direct manufacturing labor added in December	+	Manufacturing overhead allocated in December	–	Cost of goods manufactured in December	=	Work-in-process inventory on 12/31

$$\$6{,}700 + \$59{,}900 + x + 1.10x - \$234{,}000 = \$18{,}030$$
$$2.10x = \$18{,}030 - \$6{,}700 - \$59{,}900 + \$234{,}000$$
$$2.10x = \$185{,}430$$
$$x = \frac{\$185{,}430}{2.10} = \$88{,}300$$

Total direct manufacturing labor for December = $88,300
Total manufacturing overhead allocated in December = 1.10 × $88,300 = $97,130

Finished Goods Control

Beginning balance 12/1	4,400		
Cost of goods manufactured	234,000	219,000[c]	Cost of goods sold
Balance 12/31	19,400		

[c] $4,400 + $234,000 – $19,400 = $219,000

(e) Cost of goods sold for December before adjustments for under- or overallocated overhead equals $219,000:

Cost of Goods Sold

Cost of goods sold	219,000	1,730	(c) Closing entry

Manufacturing Department Overhead Control

Balance through 12/30	94,000		
(a) Indirect manufacturing labor 12/31	1,400	95,400	(c) Closing entry

Manufacturing Overhead Allocated

(c) Closing entry	97,130	92,400	Balance through 12/30
		4,730	(b) Manufacturing overhead allocated, 12/31

Wages Payable Control

		1,400	(a) 12/31 payroll

3. Closing entries:

(c) Manufacturing Overhead Allocated	97,130	
Manufacturing Department Overhead Control		95,400
Cost of Goods Sold		1,730

To close manufacturing overhead accounts and overallocated overhead to cost of goods sold

4-39 (25 min.) **Allocation and proration of overhead**.

1. Budgeted overhead rate = Budgeted overhead costs ÷ Budgeted labor costs
= $315,000 ÷ $225,000 = 140% of labor cost

2. Ending work in process

	Job 11	Job 12	Total
Direct material costs	$ 4,870	$ 5,910	$10,780
Direct labor costs	5,100	6,800	11,900
Overhead (1.40 × Direct labor costs)	7,140	9,520	16,660
Total costs	$17,110	$22,230	$39,340

Cost of goods sold = Beginning WIP + Manufacturing costs – Ending WIP
= $0 + $148,500 + $213,500 + ($213,500 × 1.40) – $39,340 = $621,560

3. Overhead allocated = 1.40 × $213,500 = $298,900
Underallocated overhead = Actual overhead – Allocated overhead
= $302,100 – $298,900 = $3,200 underallocated

4a. All underallocated overhead is written off to cost of goods sold.
WIP inventory remains unchanged.

Account (1)	Dec. 31, 2014 Account Balance (Before Proration) (2)	Write-off of $3,200 Underallocated overhead (3)	Dec. 31, 2014 Account Balance (After Proration) (4) = (2) + (3)
Work in Process	$ 39,340	$ 0	$ 39,340
Cost of goods sold	621,560	3,200	624,760
	$660,900	$3,200	$664,100

4b. Underallocated overhead prorated based on overhead allocated before proration.

Account (1)	Dec. 31, 2014 Account Balance (Before Proration) (2)	Allocated Overhead Included in Dec. 31, 2014 Account Balance (Before Proration) (3)	(4)	Proration of $3,200 Underallocated Manufacturing Overhead (5)		Dec. 31, 2014 Account Balance (After Proration) (6) = (2) + (5)
Work in Process	$ 39,340	$ 16,660[a]	(5.57%)	0.0557 × $3,200 =	$ 178	$ 39,518
Cost of Goods Sold	621,560	282,240[b]	(94.43%)	0.9443 × $3,200 =	3,022	624,582
Total	$660,900	$298,900	100%		$3,200	$664,100

[a] $11,900 × 1.40; [b] ($213,500 – $11,900) × 1.40

5. Writing off all of the underallocated overhead to Cost of Goods Sold (CGS) is warranted when CGS is large relative to Work-in-Process Inventory and Finished Goods Inventory and the underallocated overhead is immaterial. Both these conditions apply in this case. InStep Company should write off the $3,200 underallocated overhead to Cost of Goods Sold account.

4-40 (25-30 min.) **Job costing, contracting, ethics.**

1.	Direct manufacturing costs:		
	Direct materials ($9,500 × 150 huts)	$1,425,000	
	Direct manufacturing labor ($704 × 150 huts)	105,600	
	Manufacturing overhead (3.50 × $105,600)	369,600	
	Total costs		$1,900,200
	Markup (20% × $1,900,200)		380,040
	Total bid price		$2,280,240
2.	Direct manufacturing costs:		
	Direct materials	$1,567,500	
	Direct manufacturing labor	123,300	
	Manufacturing overhead	431,550	
	Total costs		$2,122,350
	Markup (20% of $2,122,350)		424,470
	Total bid price		$2,546,820

Direct materials = ($2,090,000/200) × 150 = $1,567,500

Direct manufacturing labor $= \frac{\$164,400}{200 \text{ huts}} \times 150 \text{ huts} = \$123,300$

Manufacturing overhead = (3.50 × $123,300) = $431,550

3. The main discrepancies in costs (before the mark up) in requirements 1 and 2 are as follows:

   a. Materials are marked up by 10% in the Sept. 15, 2014, invoice. ($1,567,500 – $1,425,000)/$1,425,000 = 10%.

   b. Costs are double-counted based on the Sept. 15, 2014, invoice (inspection and setup costs are included as both a direct cost as part of direct manufacturing labor and in manufacturing overhead allocated at 3.5 times direct manufacturing labor cost).

   c. The standard cost sheet includes 32 direct manufacturing labor hours, while the Sept. 15, 2014, invoice includes 30 hours of production labor.

4. According to the IMA *Standards of Ethical Conduct for Practitioners of Management Accounting and Financial Management*, the following principles should guide your decision to present the bid based on the retail cost of producing the huts:
   a. Competence—responsibility to provide information that is accurate.
   b. Integrity—refraining from engaging in any conduct that would prejudice carrying out duties ethically or that would discredit the profession.
   c. Credibility—disclose all relevant information.

I would go to my boss with the bid in requirement 1 after checking

   (a) If any direct material savings is possible and
   (b) If direct manufacturing labor can be reduced to 30 hours from 32 hours.

Assuming that only the latter is the case, then the bid I would propose is:

Direct materials $9,500 × 150	$1,425,000
Direct manufacturing labor 30 hours × $22 × 150	99,000
Manufacturing overhead	346,500
Total costs	1,870,500
Mark up at 20% of total costs	374,100
	$2,244,600

4-41 (35 min.) **Job costing—service industry**.

1. Gigs in Process (GIP) April 30, 2014

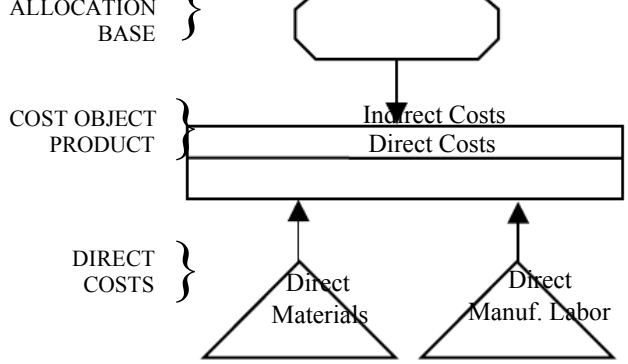
Author	Materials (1)	Direct Labor (2)	Overhead (3) = 120% × (2)	Total (4)
Irok ($570 + $110; $750 + $200)	$ 680	$ 950	$1,140	$2,770
Bottom Rung ($250 + $310; $475 + $250)	560	725	870	2,155
Rail Ride	225	250	300	775
Total	$1,465	$1,925	$2,310	$5,700

2. Cost of Completed Gigs (CCG) in April 2014

Author	Materials (1)	Direct Labor (2)	Overhead (3) = 120% × (2)	Total (4)
Freke Out ($700 + $140; $550 + $100)	$ 840	$ 650	$ 780	$2,270
Dish Towel	540	450	540	1,530
Total	$1,380	$1,100	$1,320	$3,800

3. Overhead allocated = 1.20 × 1,250[a] = $1,500
   Underallocated overhead = Actual overhead – Allocated overhead
   = $1,980 – 1,500 = $480 underallocated

[a] Total direct labor in April = $200 + $100 + $250 + $450 + $250 = $1,250



2. Amounts in millions.

(1)	Materials Control	154	
	Accounts Payable Control		154
(2)	Work-in-Process Control	152	
	Materials Control		152
(3)	Manufacturing Department Overhead Control	19	
	Materials Control		19
(4)	Work-in-Process Control	96	
	Wages Payable Control		96
(5)	Manufacturing Department Overhead Control	34	
	Wages Payable Control		34
(6)	Manufacturing Department Overhead Control	28	
	Accumulated Depreciation		28
(7)	Manufacturing Department Overhead Control	13	
	Various liabilities		13
(8)	Work-in-Process Control	93	
	Manufacturing Overhead Allocated		93
(9)	Finished Goods Control	298	
	Work-in-Process Control		298
(10a)	Cost of Goods Sold	294	
	Finished Goods Control		294
(10b)	Accounts Receivable Control (or Cash)	410	
	Revenues		410