

# Exercises

The production manager of Rordan Corporation has submitted the following quarterly production forecast for the upcoming fiscal year:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Units to be produced .....	8,000	6,500	7,000	7,500

Each unit requires 0.35 direct labor hours, and direct laborers are paid \$12 per hour.

**Required:**

1. Prepare the company's **direct labor budget** for the upcoming fiscal year. Assume that the direct labor workforce is *adjusted each quarter* to match the number of hours required to produce the forecasted number of units sold.
2. Assume that the direct labor workforce is *not adjusted* each quarter. Instead, assume that the company's direct labor workforce consists of permanent employees who are guaranteed to be paid for at least 2,600 hours of work each quarter. If the number of required direct labor hours is less than this number, the workers are paid for 2,600 hours anyway. Any hours worked in excess of 2,600 hours in a quarter are paid at the rate of 1.5 times the normal hourly rate for direct labor.

Use this schedule

Required production in units					
Direct labor time per unit (hours)					
Total direct labor-hours needed					
Direct labor cost per hour					
Total direct labor cost					

1. Assuming that the direct labor workforce is adjusted each quarter, the direct labor budget is:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year
Required production in units	8,000	6,500	7,000	7,500	29,000
Direct labor time per unit (hours)	<u>× 0.35</u>	<u>× 0.35</u>	<u>× 0.35</u>	<u>× 0.35</u>	<u>× 0.35</u>
Total direct labor-hours needed	2,800	2,275	2,450	2,625	10,150
Direct labor cost per hour	<u>× \$12.00</u>	<u>× \$12.00</u>	<u>× \$12.00</u>	<u>× \$12.00</u>	<u>× \$12.00</u>
Total direct labor cost	<u>\$ 33,600</u>	<u>\$ 27,300</u>	<u>\$ 29,400</u>	<u>\$ 31,500</u>	<u>\$121,800</u>

2. Assuming that the direct labor workforce is not adjusted each quarter and that overtime wages are paid, the direct labor budget is:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year
Required production in units	8,000	6,500	7,000	7,500	
Direct labor time per unit (hours)	<u>× 0.35</u>	<u>× 0.35</u>	<u>× 0.35</u>	<u>× 0.35</u>	
Total direct labor- hours needed	2,800	2,275	2,450	2,625	
Regular hours paid	<u>2,600</u>	<u>2,600</u>	<u>2,600</u>	<u>2,600</u>	
Overtime hours paid	<u>200</u>	<u>0</u>	<u>0</u>	<u>25</u>	
Wages for regular hours (@ \$12.00 per hour)	\$31,200	\$31,200	\$31,200	\$31,200	\$124,800
Overtime wages (@ 1.5 × \$12.00 per hour)	<u>3,600</u>	<u>0</u>	<u>0</u>	<u>450</u>	<u>4,050</u>
Total direct labor cost	<u>\$34,800</u>	<u>\$31,200</u>	<u>\$31,200</u>	<u>\$31,650</u>	<u>\$128,850</u>

The direct labor budget of Island Corporation for the upcoming fiscal year includes the following budgeted direct labor-hours.

	1 <sup>st</sup> Quarter	2 <sup>nd</sup> Quarter	3 <sup>rd</sup> Quarter	4 <sup>th</sup> Quarter
Budgeted direct labor-hours	10,000	11,000	11,500	10,750

The company's variable manufacturing overhead rate is \$2.30 per direct labor-hour and the company's fixed manufacturing overhead is \$60,000 per quarter. The only noncash item included in fixed manufacturing overhead is depreciation, which is \$20,000 per quarter.

**Required:**

1. Construct the company's **manufacturing overhead budget** for the upcoming fiscal year.
2. Compute the company's manufacturing overhead rate (including both variable and fixed manufacturing overhead) for the upcoming fiscal year. Round off to the nearest whole cent.

**Requirement 1:** Construct the company's manufacturing overhead budget for the upcoming fiscal year.

## Island Corporation

### Manufacturing Overhead Budget

	Q1	Q2	Q3	Q4	Year
Budgeted direct labor-hours	10,000	11,000	11,500	10,750	43,250
Variable overhead rate	<u>x\$2.30</u>	<u>x\$2.30</u>	<u>x\$2.30</u>	<u>x\$2.30</u>	<u>x\$2.30</u>
Variable manufacturing overhead	\$23,000	\$25,300	\$26,450	\$24,725	\$ 99,475
Fixed manufacturing overhead	<u>60,000</u>	<u>60,000</u>	<u>60,000</u>	<u>60,000</u>	<u>240,000</u>
Total manufacturing overhead	83,000	85,300	86,450	84,725	339,475
Less depreciation	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>80,000</u>
Cash disbursements for manufacturing overhead	<u>\$63,000</u>	<u>\$65,300</u>	<u>\$66,450</u>	<u>\$64,725</u>	<u>\$259,475</u>

**Requirement 1:** Construct the company's manufacturing overhead budget for the upcoming fiscal year.

<b>Island Corporation</b>					
Manufacturing Overhead Budget					
	Q1	Q2	Q3	Q4	Year
Budgeted direct labor-hours	10,000	11,000	11,500	10,750	43,250
Variable overhead rate	<u>x\$2.30</u>	<u>x\$2.30</u>	<u>x\$2.30</u>	<u>x\$2.30</u>	<u>x\$2.30</u>
Variable manufacturing overhead	\$23,000	\$25,300	\$26,450	\$24,725	\$ 99,475
Fixed manufacturing overhead	<u>60,000</u>	<u>60,000</u>	<u>60,000</u>	<u>60,000</u>	<u>240,000</u>
Total manufacturing overhead	83,000	85,300	86,450	84,725	339,475
Less depreciation	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>80,000</u>
Cash disbursements for manufacturing overhead	<u>\$63,000</u>	<u>\$65,300</u>	<u>\$66,450</u>	<u>\$64,725</u>	<u>\$259,475</u>

**Requirement 2:** Compute the company's manufacturing overhead rate for the upcoming fiscal year. Round off to the nearest whole cent.

Total budgeted manufacturing overhead for the year (a)	\$339,475
Total budgeted direct labor-hours for the year (b)	43,250
Predetermined overhead rate for the year (a) ÷ (b)	<u>\$7.85</u>



Weller Company's budgeted unit sales for the upcoming fiscal year are provided below:

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Budgeted unit sales .....	15,000	16,000	14,000	13,000

The company's *variable* selling and administrative expenses per unit is \$2.50. Fixed selling and administrative expenses include advertising expenses of \$8,000 per quarter, executive salaries of \$35,000 per quarter, and depreciation of \$20,000 per quarter. In addition, the company will make insurance payments for \$5,000 in the first quarter and \$5,000 in the third quarter. Finally, property taxes of \$8,000 will be paid in the second quarter.

**Required:**

1. Prepare the company's selling and administrative expense budget for the upcoming fiscal year.

Budgeted unit sales					
Variable selling and administrative expense per unit					
Variable selling and administrative expense					
Fixed selling and administrative expenses:					
Advertising					
Executive salaries					
Insurance					
Property taxes					
Depreciation					
Total fixed selling and administrative expenses					
Total selling and administrative expenses					
Less depreciation					
Cash disbursements for selling and administrative expenses					

Weller Company  
Selling and Administrative Expense Budget

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year
Budgeted unit sales	15,000	16,000	14,000	13,000	58,000
Variable selling and administrative expense per unit	<u>× \$2.50</u>	<u>× \$2.50</u>	<u>× \$2.50</u>	<u>× \$2.50</u>	<u>× \$2.50</u>
Variable selling and administrative expense	<u>\$ 37,500</u>	<u>\$ 40,000</u>	<u>\$ 35,000</u>	<u>\$ 32,500</u>	<u>\$145,000</u>
Fixed selling and administrative expenses:					
Advertising	8,000	8,000	8,000	8,000	32,000
Executive salaries	35,000	35,000	35,000	35,000	140,000
Insurance	5,000		5,000		10,000
Property taxes		8,000			8,000
Depreciation	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>80,000</u>
Total fixed selling and administrative expenses	<u>68,000</u>	<u>71,000</u>	<u>68,000</u>	<u>63,000</u>	<u>270,000</u>
Total selling and administrative expenses	105,500	111,000	103,000	95,500	415,000
Less depreciation	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>	<u>80,000</u>
Cash disbursements for selling and administrative expenses	<u>\$ 85,500</u>	<u>\$ 91,000</u>	<u>\$ 83,000</u>	<u>\$ 75,500</u>	<u>\$335,000</u>

# Review Problem: Budget Schedules

Mynor Corporation manufactures and sells a seasonal product that has a peak sales in the third quarter. The following information concerns operations for Year 2 - the coming year – and for the first two quarters of Year 3.

a. The company's single product sells for \$8 per unit. Budgeted unit sales for the next six quarters are as follows (all sales are on credit):

	Year 2 Quarter				Year 3 Quarter	
	1	2	3	4	1	2
Budgeted unit sales .....	40,000	60,000	100,000	50,000	70,000	80,000

b. Sales are collected in the following pattern: 75% in the quarter the sales are made, and the remaining 25% in the following quarter. On January 1<sup>st</sup>, Year 2, the company's balance sheet showed \$65,000 in accounts receivable, all of which will be collected in the first quarter of the year.

c. The company desires an ending finished goods inventory at the end of each quarter equal to 30% of the budgeted unit sales for the next quarter. On December 31<sup>st</sup>, Year 1, the company had 12,000 units on hand.

d. Five pounds of raw materials are required to complete one unit of product. The company requires ending raw materials inventory at the end of each quarter equal to 10% of the following quarter's production needs. On December 31<sup>st</sup>, Year 1, the company had 23,000 pounds of raw materials on hand.

e. The raw material costs \$0.80 per pound. Raw material purchases are paid for in the following pattern: 60% paid in the quarter the purchases are made, and the remaining 40% paid in the following quarter. On January 1<sup>st</sup>, Year 2, the company's balance sheet showed \$81,500 in accounts payable for raw material purchases, all of which will be paid for in the first quarter of the year.

***Required:***

Prepare the following budgets and schedules for the year, showing both quarterly and total figures:

1. A sales budget and a schedule of expected cash collections;
2. A production budget;
3. A direct materials budget and a schedule of expected cash payments for purchases of materials.

## 1. A sales budget

	Year 2 Quarter				Year 2
	1	2	3	4	
Budgeted unit sales .....	40,000	60,000	100,000	50,000	250,000
Selling price per unit .....	× \$8	× \$8	× \$8	× \$8	× \$8
Total sales .....	<u>\$320,000</u>	<u>\$480,000</u>	<u>\$800,000</u>	<u>\$400,000</u>	<u>\$2,000,000</u>

## 1. and a schedule of expected cash collections

	Year 2 Quarter				Year 2
	1	2	3	4	
Beginning accounts receivable .....	\$ 65,000				\$ 65,000
First-quarter sales (\$320,000 × 75%, 25%) .....	240,000	\$ 80,000			320,000
Second-quarter sales (\$480,000 × 75%, 25%) .....		360,000	\$120,000		480,000
Third-quarter sales (\$800,000 × 75%, 25%) .....			600,000	\$200,000	800,000
Fourth-quarter sales (\$400,000 × 75%) .....				300,000	300,000
Total cash collections .....	<u>\$305,000</u>	<u>\$440,000</u>	<u>\$720,000</u>	<u>\$500,000</u>	<u>\$1,965,000</u>

## 2. A production budget

	Year 2 Quarter				Year 2	Year 3 Quarter	
	1	2	3	4		1	2
Budgeted unit sales .....	40,000	60,000	100,000	50,000	250,000	70,000	80,000
Add desired ending finished goods inventory* ....	<u>18,000</u>	<u>30,000</u>	<u>15,000</u>	<u>21,000<sup>†</sup></u>	<u>21,000</u>	<u>24,000</u>	
Total needs .....	58,000	90,000	115,000	71,000	271,000	94,000	
Less beginning finished goods inventory .....	<u>12,000</u>	<u>18,000</u>	<u>30,000</u>	<u>15,000</u>	<u>12,000</u>	<u>21,000</u>	
Required production .....	<u><u>46,000</u></u>	<u><u>72,000</u></u>	<u><u>85,000</u></u>	<u><u>56,000</u></u>	<u><u>259,000</u></u>	<u><u>73,000</u></u>	

\*30% of the following quarter's budgeted unit sales.  
<sup>†</sup>30% of the budgeted Year 3 first-quarter sales.



3. Based on the production budget, raw materials will need to be purchased as follows:

	Year 2 Quarter				Year 2	Year 3 Quarter
	1	2	3	4		1
Required production in units of finished goods .....	46,000	72,000	85,000	56,000	259,000	73,000
Units of raw materials needed per unit of finished goods .....	<u>× 5</u>	<u>× 5</u>	<u>× 5</u>	<u>× 5</u>	<u>× 5</u>	<u>× 5</u>
Units of raw materials needed to meet production .....	230,000	360,000	425,000	280,000	1,295,000	365,000
Add desired units of ending raw materials inventory* .....	<u>36,000</u>	<u>42,500</u>	<u>28,000</u>	<u>36,500<sup>†</sup></u>	<u>36,500</u>	
Total units of raw materials needed .....	266,000	402,500	453,000	316,500	1,331,500	
Less units of beginning raw materials inventory .....	<u>23,000</u>	<u>36,000</u>	<u>42,500</u>	<u>28,000</u>	<u>23,000</u>	
Units of raw materials to be purchased .....	243,000	366,500	410,500	288,500	1,308,500	
Unit cost of raw materials .....	<u>× \$0.80</u>	<u>× \$0.80</u>	<u>× \$0.80</u>	<u>× \$0.80</u>	<u>× \$0.80</u>	
Cost of raw materials to be purchased .....	<u>\$194,400</u>	<u>\$293,200</u>	<u>\$328,400</u>	<u>\$230,800</u>	<u>\$1,046,800</u>	

\*10% of the following quarter's production needs in pounds.

†10% of the Year 3 first-quarter production needs in pounds.

3. Based on the raw material purchases above, expected cash payments are computed as follows:

	Year 2 Quarter				Year 2
	1	2	3	4	
Beginning accounts payable .....	\$ 81,500				\$ 81,500
First-quarter purchases (\$194,400 × 60%, 40%) .....	116,640	\$ 77,760			194,400
Second-quarter purchases (\$293,200 × 60%, 40%) .....		175,920	\$117,280		293,200
Third-quarter purchases (\$328,400 × 60%, 40%) .....			197,040	\$131,360	328,400
Fourth-quarter purchases (\$230,800 × 60%) .....				138,480	138,480
Total cash disbursements .....	<u>\$198,140</u>	<u>\$253,680</u>	<u>\$314,320</u>	<u>\$269,840</u>	<u>\$1,035,980</u>