

ACC406 Master Budgets

TEXTBOOK: Mowen, M. M., Hansen, D. R., McConomy, D. J., Heitger, D. L., Pittman, J. A., & Witt, B. D. (2018). *Cornerstones of managerial accounting*. Toronto: Nelson.

Sales Budget

Describes the expected sales in units and dollars. It is the basis for all other operating budgets and most financial budgets.

Example #1:

Budgeted units to be sold for each quarter of 2019: 1000, 1200, 1500 and 2000. Selling price is \$10 per T-shirt. Prepare a sales budget for each quarter and year.

Solution #1:

**Varman's T-shirts
Sales Budget
For the year ending, December 31, 2019**

	Quarter				
	1	2	3	4	Year
Units	1,000	1,200	1,500	2,000	5,700
Unit SP	*\$10	*\$10	*\$10	*\$10	*\$10
Budgeted sales	\$10,000	\$12,000	\$15,000	\$20,000	\$57,000

	Quarter				
	1	2	3	4	Year
Units	1,000	1,200	1,500	2,000	5,700
Unit SP	*\$10	*\$10	*\$10	*\$10	*\$10
Budgeted sales	\$10,000	\$12,000	\$15,000	\$20,000	\$57,000

Production Budget

The production budget tells us how many units must be produced to meet sales needs and to satisfy ending inventory requirements.

- **Units to be produced = Expected unit sales + Units in desired ending inventory (EI) – Units in beginning inventory (BI)**

Example #2:

Budgeted units to be sold for each quarter of 2019: 1000, 1200, 1500 and 2000. Company policy requires 20% of next quarter's sales in ending inventory and that beginning inventory of T-shirts for the first quarter of the year was 180 units. Sales for first quarter of 2020 are estimated at 1000 units

Solution #2:

- Ending Inventory, quarter 1 = $0.20 * 1,200$ units = 240 units
- Ending Inventory, quarter 2 = $0.20 * 1,500$ units = 300 units
- Ending inventory, quarter 3 = $0.20 * 2,000$ units = 400 units
- Ending inventory, quarter 4 = $0.20 * 1,000$ units = 200 units

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**Varman's T-shirts
Production Budget
For the Year Ending December 31, 2019
Quarter**

	1	2	3	4	Year
Sales in units	1,000	1,200	1,500	2,000	5,700
Desired EI	240	300	400	200	200
Total Needs	1,240	1,500	1,900	2,200	5,900
Less: BI	(180)	(240)	(300)	(400)	(180)
Units to be produced	1,060	1,260	1,600	1,800	5,720

Direct Materials Purchases Budget

The direct materials (dm) purchases budget shows the amount and cost of raw materials to be purchased in each time period; it depends on the expected use of materials in production and the raw materials inventory needs of the firm.

- **Purchases = Dm needed for production + Dm materials in desired EI – Dm in BI**

Example #3:

Budgeted units to be produced for each quarter of 2019: 1060, 1260, 1600 and 1800. T-shirts cost \$3 each and ink costs \$0.20 per gram. Factory needs one t-shirt and 5 grams of ink for the log per shirt. The policy is to have 10% of the following quarter's production needs in ending inventory. The factory had 58 plain t-shirts and 390 grams of ink on January 1, 2020. At the end of the year, desired ending inventory is 106 plain t-shirts and 530 grams of ink.

Solution #3:

- Ending inventory plain T-shirts, quarter 2 = $0.10 * (1,600 \text{ units} * 1 \text{ T-shirt}) = 160$
- Ending inventory plain T-shirts, quarter 3 = $0.10 * (1,800 \text{ units} * 1 \text{ T-shirt}) = 180$
- Ending inventory ink, quarter 2 = $0.10 * (1,600 \text{ units} * 5 \text{ grams}) = 800$
- Ending inventory ink, quarter 3 = $0.10 * (1,800 \text{ units} * 5 \text{ grams}) = 900$

**Varman's T-shirts
Direct Materials Purchases Budget
For the Year Ending December 31, 2019
Quarter**

T-shirts	1	2	3	4	Year
Units to be produced	1,060	1,260	1,600	1,800	5,720
DM per unit	*1	*1	*1	*1	*1
Production needs	1,060	1,260	1,600	1,080	5,720
Desired EI	126	160	180	106	106

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Total needs	1,186	1,420	1,780	1,906	5,826
Less: BI	(58)	(126)	(160)	(180)	(58)
DM to be purchased	1,128	1,294	1,620	1,726	5,768
Cost per T-shirt	*\$3	*\$3	*\$3	*\$3	*\$3
Total purchase cost T-shirts	\$3,384	\$3,882	\$4,860	\$5,178	\$17,304
Ink					
	1	2	3	4	Year
Units to be produced	1,060	1,260	1,600	1,800	5,720
DM per unit	*5	*5	*5	*5	*5
Production needs	\$5,300	\$6,300	\$8,000	\$9,000	\$28,600
Desired EI	630	800	900	530	530
Total needs	5,930	7,100	8,900	9,530	29,130
Less: BI	(390)	(630)	(800)	(900)	(390)
DM to be purchased	5,540	7,100	8,900	9,530	29,130
Cost per gram	*\$0.20	*\$0.20	*\$0.20	*\$0.20	*\$0.20
Total purchase cost of ink	\$1,108	\$1,294	\$1,620	\$1,726	\$7,784
Total DM purchase cost	\$4,492	\$5,176	\$6,480	\$6,904	\$23,052

Direct Labour Budget

The direct labour budget shows the total direct labour hours and direct labour cost needed for the number of units in the production budget.

- The budgeted hours are determined by the relationship between labour and output.

Example #4:

Recall the production budget, that budgeted units to be produced for each quarter of 2019 are: 1060, 1260, 1600 and 1800. It takes 0.12 hour to produce one T-shirt. The average wage cost per hour is \$11.50. Prepare a direct labour budget.

Solution #4:

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**Varman's T-shirts
Direct Labour Budget
For the Year Ending December 31, 2019
Quarter**

	1	2	3	4	Year
Units to be produced	1060	1260	1600	1800	5720
DL time per unit in hours	*0.12	*0.12	*0.12	*0.12	*0.12
Total hours needed	127.20	151.20	192.00	216.00	686.40
Average wage per hour	*11.50	*11.50	*11.50	*11.50	*11.50
Total direct labour cost	\$1,463	\$1,739	\$2,280	\$2,484	\$7,894

Overhead Budget

The overhead budget shows the expected value of all production costs other than DM and DL. Many use DL hours as the driver for overhead and vary with direct labour hours are pooled and called variable overhead. The remaining goes into fixed overhead.

Example #5:

Refer to the DL budget. The variable overhead rate is \$5 per DL hour, fixed overhead is budgeted at \$1,645 per quarter (this amount includes \$540 per quarter for depreciation). Prepare an overhead budget.

Solution #5:

**Varman's T-shirt
Overhead Budget
For the Year Ending December 31, 2019
Quarter**

	1	2	3	4	Year
Budgeted DL hours	127.20	151.20	192.00	216.00	686.40
Variable OH rate	*\$5	*\$5	*\$5	*\$5	*\$5
Budgeted variable OH	\$636	\$756	\$960	\$1,080	\$3,432
Budgeted fixed OH	1,645	1,645	1,645	1,645	6,580
Total overhead	\$2,281	\$2,401	\$2,605	\$2,725	\$10,012

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Ending Finished Goods Inventory Budget

This budget supplies information needed for the balance sheet and serves as an important input for the preparation of the cost of goods sold budget. The unit cost of each T-shirt is needed.

Example #6:

Refer to your DM, DL and OH budgets. Calculate the unit product cost and prepare an ending finished goods inventory budget.

Solutions

(1) Unit Cost Computation

Direct Materials		
Plain T-shirt	\$3.00	
Ink	\$1.00	\$4.00
Direct Labour (0.12hr @ \$11.50)		\$1.38
Overhead		
Variable (0.12 hr @ \$0.50)		\$0.60
Fixed (0.12 hr @ \$9.59)		1.15
Total unit cost		\$7.13

(2) Varman's T-shirt

Ending Finished Goods Inventory Budget For the Year Ending December 31, 2019

Logo t-shirts	200
Unit cost	\$7.13
Total ending inventory	\$1,426

Cost of Goods Sold Budget

The cost of goods sold budget reveals the expected cost of goods to be sold.

Example #7:

Refer to the DM, DL, OH and ending finished goods budgets. Prepare a cost of goods sold budget.

Solution #7:

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**Varman's T-shirts
Cost of Goods Sold Budget
For the Year Ending December 31, 2019**

DM used (5720 plain t-shirts * 3) + (28600 grams ink * 0.20)	\$22,800
DL used	\$7,894
Overhead	\$10,012
Budgeted manufacturing costs	\$40,786
Beginning finished goods	\$1,251
Goods available for sales	\$42,307
Less: Ending finished goods	\$(1,426)
Budgeted cost of goods sold	\$40,611

Accounts Receivable Collections Schedule

- Shows the amount of Accounts Receivable that you are collecting during a quarterly or monthly basis.

Example #8:

Varman's T-shirts expects that, on average 25% of total sales are cash and 75% of total sales are on credit. Of the credit sales, Varman's T-shirts expects that 90% will be paid in cash during the quarter of sale, and the remaining 10% will be paid in the following quarter. From the sales budget you expect in quarter 1 to earn \$10,000, quarter 2 to earn \$12,000, quarter 3 to earn \$15,000 and quarter 4 to earn \$20,000. The balance in accounts receivable as of the last quarter of 2018 was \$1,350. This will be collected in cash during the first quarter of 2019.

- Calculate cash sales expected in each quarter of 2019.
- Prepare a schedule showing cash receipts from sales expected in each quarter of 2019.

Solution #8:

- Cash sales expected in Quarter 1 = $\$10,000 * 0.25 = \$2,500$
- Cash sales expected in Quarter 2 = $\$12,000 * 0.25 = \$3,000$
- Cash sales expected in Quarter 3 = $\$15,000 * 0.25 = \$3,750$
- Cash sales expected in Quarter 4 = $\$20,000 * 0.25 = \$5,000$

	Quarter			
	1	2	3	4
Cash sales	\$2,500	\$3,000	\$3,750	\$5,000
Received on account:				
Q4, 2018	\$1,350			
Q1, 2019	\$6,750 ($\$10,000 * 0.75(0.9)$)	\$750 ($\$10,000 * 0.75(0.1)$)		

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Q2, 2019		\$8,100 (\$12,000*0.75)(0.9)	\$900 (\$12,000*0.75)(0.1)	
Q3, 2019			\$10,125 (\$15,000*0.75)(0.9)	
Q4, 2019				\$13,500 (\$20,000*0.75)(0.9)

Cash Payments on Accounts Payable

The amount of cash that you will be paying on a quarterly or monthly basis

Example #9:

Varman's T-shirts purchased raw materials on account: 80% of purchases are paid for in the quarter of purchase. The remaining 20% are paid for in the following quarter. The purchases for the fourth quarter 2018 were \$5,000. The direct materials budget shows the expected purchases of raw materials purchases for each quarter of 2019. Quarter 1 was \$4,492, Quarter 2 was \$5,176, Quarter 3 was \$6,480, Quarter 4 was \$6,904 were the direct materials expected to purchase. Prepare a schedule showing anticipated payments for accounts payable for materials.

Solution #9:

	Quarter			
	1	2	3	4
Q4, 2018	\$1,000 (\$5,000*0.20)			
Q1, 2019	\$3,594 (\$4,492*0.80)	\$898 (\$4,492*0.20)		
Q2, 2019		\$4,141 (\$5,176*0.80)	\$1,035 (\$5,176*0.20)	
Q3, 2019			\$5,184 (\$6,480*0.80)	\$1,296 (\$6,480*0.20)
Total cash needed	\$4,594	\$5,039	\$6,219	\$6,819

Cash Budget

The Cash budget includes cash receipts, disbursements, any excess or deficiency of cash and financing. At its simplest, **cash budget is cash inflows minus cash outflows.**

Example #10:

Refer to direct labour budget, overhead budget, selling and administrative expenses budget, budgeted income statement, accounts receivable schedule and cash payments schedule the following details as well:

- 1) A \$1,000 minimum cash balance is required for the end of each quarter. Interest is 12% per year on any amounts borrowed. Interest payments are made only for the principal being repaid. All borrowing takes place at the beginning of a quarter and all repayments takes place at the end of the quarter.
- 2) Budgeted depreciation is \$540 per quarter for overhead and \$150 per quarter for selling and administrative expenses.

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- 3) The capital budget for 2019 revealed plans to purchase additional screen-printing equipment. The cash outlay for the equipment, \$6,500 will take place in the first quarter. The company plans to finance the acquisition of the equipment with operating cash, supplementing it with short-term loans as necessary.
- 4) Corporate income taxes are approximately \$3,068 and will be paid at the end of the fourth quarter
- 5) Beginning cash balance is \$5,200.
- 6) All amounts in the budgets are to be rounded to the nearest dollar. Prepare a cash budget.

Solution #10:

**Varman's T-shirts
Cash Budget
For the Year Ending December 31, 2019**

	Quarter				
	1	2	3	4	Year
Beg. cash balance	\$5,200	\$1,000	\$1,183	\$3,046	\$5,200
Cash sales and collections	\$10,600	\$11,850	\$14,775	\$19,625	\$56,850
Total cash available	\$15,800	\$12,850	\$15,958	\$22,671	\$62,050
Payments for:					
Raw materials	(4,594)	(5,039)	(6,219)	(6,819)	(22,671)
Direct labour	(1,463)	(1,739)	(2,208)	(2,484)	(7,894)
Overhead	(1,741)	(1,861)	(2,065)	(2,185)	(7,852)
Selling and admin	(1,670)	(1,790)	(2,420)	(2,170)	(8,050)
Income taxes				(3,068)	(3,068)
Equipment	(6,500)				(6,500)
Total disbursements	(15,968)	(10,249)	(12,912)	(16,726)	(56,035)
Excess (deficiency) of cash	(168)	2,421	3,046	5,945	6,015
Financing:					
Borrowings	1,168				1,168
Repayments		(1,168)			(1,168)
Interest		(70)			(70)
Total financing	1,168	(1,238)			(70)
Ending cash balance	\$1,000	\$1,183	\$3,046	\$5,945	\$5,945