

Team Project Instructions

Objective: Demonstrate knowledge of accounting and business by analyzing a case and applying the accounting concepts you have learned to date. Improve ability to work with a team. This project requires you to primarily apply Chapter 9 materials and complete the master budgets **using Excel**. Additionally, you will perform some basic target profit analysis.

Project Submission

When you have completed your file, please submit it in the following format:

1. Upload the Excel file to Canvas by **10:30 am, November 30th**. Only one file needs to be uploaded. Please make sure all of your names are printed in the file. Late submissions will not be accepted. Peer evaluations will also be due at the beginning of class on November 30th.
2. You must use formulas and functions in your file such that when an input (for instance, sales volume) is changed, all of the worksheets generate new outputs. You will lose 1 to 5 points for any functional deficiencies, depending on the severity of deficiencies.
3. The assignment is worth a total **40 points** and is a team project. Non-participating team group members and those who do not perform their "fair share" of the work will receive a reduced project grade. It is even possible for an individual to receive a score of zero on the assignment. Each of you has the right to expect the other members of your Team to participate fully in the completion of the assigned project. The other members of your Team will evaluate your contribution. I will post evaluation forms for all to complete at a later time.
4. The worksheets **must be in the order as specified**, or points will be deducted.

Other information

1. You have been exposed to Excel. You should already know how to link worksheets and enter cell formulas. Since all budgets are based on sales estimates, all worksheets should be linked to sales estimates. If sales estimate changes, all the other worksheets should automatically adjust to the changes. The shirts purchase, direct labor, and manufacturing overhead costs will change, etc. The cells on Cash Budget and budgeted Income Statement and budgeted Balance Sheet, while may not be directly linked to sales estimates, should be linked to the cells in other worksheets as well.
2. Academic integrity: Each group is expected to input **your own** data, develop **your own** spreadsheet formulas, and set up **your own** worksheets within your file. You **MUST NOT** use someone else's file or share a file. You have great flexibility in how you set up your spreadsheets. It is extremely unlikely that the many choices you make in developing your worksheets will be identical or even close to those of other students. I will check for evidence of shared files. If academic dishonesty is found, no credit will be granted.
3. While you are welcome to obtain help with this project during office hours, I will **NOT** review your file via email before the submission deadline.
4. Check figures: the total manufacturing overhead is \$209,359; the ending cash balance is \$40,705; operating income is \$210,395.

SCREEN THREADS

After graduating from Southwestern University in College Town, USA with a degree in business, Luke realized that he wanted to remain in College Town. After a number of unsuccessful attempts at getting a job in his discipline, Luke decided to go into business for himself. In thinking about his business venture, Luke determined that he had four criteria for the new business.

- First, he wanted to do something that he would enjoy.
- Second, he wanted a business that would give back to the community.
- Third, he wanted a business that would grow and be more successful every year.
- Fourth, realizing that he was going to have to work very hard, Luke wanted a business that would generate a minimum operating income of \$225,000 annually.

While reflecting on the criteria he had outlined, Luke, who had been president of his fraternity and served as an officer in several other student organizations, realized that there was no place in College Town to have custom sweatshirts made using a silk-screen process. When student organizations wanted sweatshirts for their members or to market on campus, the officers had to make a trip to a city 100 miles away to visit "Shirts and More." Luke had worked as a part-time employee at Shirts and More while he was in high school and had envisioned owning such a shop. He realized that a sweatshirt shop in College Town had the potential to meet all four criteria he had set. Luke set up an appointment with Abbie, the owner of Shirts and More, to obtain information useful in getting his shop started. Because Abbie liked Luke and was intrigued by his entrepreneurial spirit, she answered many of Luke's questions.

In addition, Abbie provided information concerning the type of equipment Luke would need for his business and the average useful life. Abbie knows a competitor who is retiring and would like to sell his equipment. Luke can purchase the equipment at the beginning of 2023 and the owner is willing to give him terms of 50% due upon purchase and 25% due the quarter following the purchase, and 25% due the second quarter following the purchase. Luke will purchase the following equipment January 1, 2023:

Equipment Purchase	Cost	Useful life - Years
Hand operated press that applies ink to shirt	\$ 9,000	5
Screens, other smaller items.	\$ 2,400	2
Light exposure table	\$ 1,500	10
Dryer conveyer belt that makes ink dry on the shirts	\$ 2,600	10
Computer graphics software and color printer	\$ 3,750	4
Display furniture	\$ 2,500	10
Used Cash register	\$ 1,250	5

Luke will use the straight-line method (assuming no residual value) to record the depreciation of the equipment.

Luke has decided to use the sweatshirt supplier recommended by Abbie. He learned the purchase cost per sweatshirt to be silk-screened (direct materials) would be **\$22.50**.

Abbie encouraged Luke to maintain an ending inventory of shirts equal to 10% of the next quarter's sales.

Abbie has also encouraged Luke to ask the sweatshirt supplier for terms of 50% of a quarter's purchases to be paid in the quarter of purchase with the remaining 50% of the quarter's purchases to be paid in the quarter following the purchase.

Luke also learned from talking with Abbie that the ink (indirect materials) used in the silk-screen process costs approximately \$2.50 per shirt.

Knowing that the silk-screen process is somewhat labor intensive, Luke plans to hire college students to help with the silk-screen process with the wage rate of \$16.00 per hour. Each shirt needs approximately 0.2 hours to complete the silk-screen process.

In addition, Luke will need one person to take orders, bill customers, and operate the cash register. Sophia, who is currently Director of Student Development at Southwestern, has approached Luke about a job in sales. Sophia knows the officers of all of the student organizations on College. In addition, she is very active in the community. Luke thinks Sophia can bring in a lot of business. Additionally, she also has the clerical skills needed for the position. Because of her contacts, Luke is willing to pay Sophia \$4,600 per month plus a commission of 2.0% of sales revenues.

Luke realizes that he will have difficulty in finding a person skilled in computer graphics to generate the designs to be printed on the shirts. Abbie recently hired a graphics designer in that position for Shirts and More at a rate of \$4,500 per month plus \$0.25 for each shirt printed. Luke believes he can find a recently graduated graphics design student to work for the same rate Abbie is paying her designer.

Luke was fortunate in finding a commercial building for rent near the University and the downtown area. The landlord requires a one-year lease. Although the monthly rent of \$5,000 is more than Luke had anticipated paying, the building is nice, has adequate parking, and there is room for expansion. Luke anticipates that 75% of the building will be used in the silk-screen process while 25% will be used for sales.

Luke's fraternity brothers have encouraged him to advertise weekly in the University student newspaper. Upon inquiring Luke found that a 3" x 3" ad would cost \$75 per week. Luke also plans to run a weekly ad in the local newspaper that will cost him \$100 per week. **(Note: Use 52 weeks per year instead of 4 weeks per month.)**

Luke wants to sell a large number of quality sweatshirts at a reasonable cost. He estimates the selling price of each customized shirt to be \$44. All sales are credit sales. Abbie has suggested that he should ask customers to pay for 50% of their purchases in the quarter purchased, 35% in the quarter following the purchases, and 15% in the second quarter following the purchases. Since Luke will be making custom sweatshirts, he is not keeping any extra inventory of finished shirts.

After talking to the insurance agent and the property valuation administrator in his municipality, Luke estimates that the property taxes and insurance on the machinery will cost \$2,800 annually, while property tax and insurance on display furniture and cash register will total \$400 annually. The property taxes will be paid each quarter.

Abbie reminded Luke that maintenance of the machines is required for the silk-screen process. In addition, Luke realizes that he must consider the cost of utilities. The building Luke wants to rent is roughly the same size as the building occupied by Shirts and More. In addition, Shirts and More sells *approximately* the same number of shirts Luke plans to sell in his store. Therefore, Luke is confident that the maintenance and utility costs for his shop will be comparable to the maintenance and utility costs for Shirts and More as below. Luke will use the **regression method** to estimate variable and fixed costs for the purpose of budgeting.

	<u>Shirts Sold</u>	<u>Maintenance</u> <u>Cost</u>	<u>Utility Cost</u>
January	1,764	903	959
February	3,000	956	1,114
March	3,180	983	1,127
April	3,150	985	1,135
May	2,352	903	1,000
June	1,950	890	1,000
July	1,578	890	1,000
August	1,254	853	1,100
September	3,600	1,060	1,266
October	3,064	1,015	1,223
November	3,160	1,007	1,124
December	3,915	1,120	1,305

(Note: When estimating maintenance and utility costs, input data on a worksheet and use Excel functions to estimate the slope and the intercept. When you budget maintenance and utility costs, you should use formulas linked to the estimates of slope and intercept, and related quantity of shirts, instead of inputting numbers by hand. Use Excel to display the total costs to the whole dollar.)

Luke estimates the number of shirts to be sold in the first five quarters, beginning January 2023, to be:

- First quarter 2023 7,150
- Second quarter 2023 6,700
- Third quarter 2023 5,750
- Fourth quarter 2023 9,100
- First quarter 2024 8,200

Seeing how determined his son was to become an entrepreneur, Luke's father offered to co-sign a note for an amount up to \$42,000 to help Luke open his sweatshirt shop, Screen Threads. The loan officer advised Luke that the interest rate on a 12-month loan would be 15 percent. Luke expects the loan to be taken out January 1, 2023 and paid back, along with interest expense, on December 31, 2023. Luke will also invest \$10,000 of his own saved money.

Preparation of Spreadsheet File

Create the following seven separate worksheets:

Sheet 1: **Regression Results** Present the regression results for estimation of maintenance and utility costs.

Sheet 2: Include the following two budgets on the second worksheet, clearly labeled:

Sales Budget Prepare a sales budget for each quarter and for the year in total.

Cash Collections Budget Prepare a cash collections budget for each quarter and for the year in total. List cash collections in the following order: First-quarter sales, second-quarter sales, third-quarter sales, fourth-quarter sales, and total cash collections.

Sheet 3: Include the following two budgets on the third worksheet, clearly labeled:

Shirts Purchase (Direct Material Purchase) Budget Prepare a shirts purchase budget, in units and in total dollars, for each quarter and for the year in total. *(Note: Production is the same as sales, i.e., no finished goods inventory)*

Schedule of Expected Cash Payments for Shirts Purchases Prepare a schedule of cash payments for shirts purchases for each quarter and for the year in total. List cash disbursements in the following order: First-quarter purchases, second-quarter purchases, third-quarter purchases, fourth-quarter purchases, and total cash payments.

Sheet 4: Include the following two budgets on the fourth worksheet, clearly labeled:

**Silk-Screen Labor
Budget**

Prepare a labor budget, in labor-hours and in total dollars, for each quarter and for the year in total.

**Silk-Screen Overhead
Budget**

Prepare an overhead budget for each quarter and for the year in total. List the

overhead items in the following order: Variable Overhead Costs, including ink, maintenance, utilities, graphics design, and subtotal of variable costs; Fixed Overhead Costs, including rent, maintenance, utilities, graphics design, property taxes and insurance, depreciation, and subtotal of fixed costs; and finally, Total Overhead Costs.

Sheet 5: Include the following two budgets on the fifth worksheet, clearly labeled:

**Selling and
Administrative
Expenses Budget**

Prepare a selling and administrative expenses budget for each quarter and for the year in total. List the cost items in the following order: Variable S&A Expenses, including sales commissions and subtotal of variable expenses; Fixed S&A Expenses, including advertising, rent, salaries, property taxes and insurance, depreciation, and subtotal of fixed expenses; and finally, Total Selling and Administrative Expenses.

**Cash Payments
Budget and Combined
Cash Budget**

Prepare a cash payments budget and combined cash budget for each quarter and for the year in total. List clearly each type of cash payments (for shirts purchases, labor, overhead, and S&A, and so on). **Note: Depreciation does not require a cash payment.**

Sheet 6: Include the following on the sixth worksheet, clearly labeled:

**Budgeted
Income
Statement**

Prepare a budgeted income statement **through net operating income** (interest expense excluded) for 2023 in **the contribution margin format**.

Target Profit Analysis

Use Excel formula to compute how many shirts Luke would have to sell to earn a target net operating income of \$225,000. Show steps of your calculation.

Sheet 7: Include the following on the seventh worksheet, clearly labeled:

Budgeted Balance Sheet for the year ended 12/31/23