**REVIEW FOR MANAGERIAL ACCOUNTING EXAM**

**Material Covered in Course**

* Introduction (Chapter 1)
* Cost behavior (Chapters 2 (basic) and 6 (more advanced))
* Different cost accounting systems
  + Job-order or product costing (Chapter 3)
  + Process costing (Chapter 4)
  + Activity-based-costing (ABC) (Chapter 5
* Cost-volume-profit (CVP) (Chapter 7). CVP is a major takeaway.
* Balance scorecard (Chapter 12)
* Decision Making (Chapter 14). Decision making is a major takeaway.

**BASIC COST MANAGEMENT CONCEPTS**

**CHAPTER 2**

**PRODUCT VS. PERIOD COSTS**

**Product costs**

* **Raw materials—**materialsthat await production
* **Work in process—**partiallycompleted production
* **Finished goods—**completedproduction that awaits sale

**Period costs** are all other non-product costs in an organization

The purpose of the cost accounting system is to assign manufacturing costs to units produced.

**MANUFACTURING COSTS**

The purpose of the cost accounting system is to assign manufacturing costs to units produced.

* **DIRECT MATERIALS**
* **DIRECT LABOR**
* **MANUFACTURING OVERHEAD—**all other manufacturing costs
  + **INDIRECT MATERIALS**
  + **INDIRECT LABOR**
  + **Other Manufacturing Costs-**
* **Conversion cost** direct labor + manufacturing overhead
* **Prime cost:** direct material + direct labor

**BASIC COST MANAGEMENT CONCEPTS**

***COST DRIVER***

**A Cost Driver Is Any Event or Activity That Causes Costs To Be Incurred**.

* *A cost driver refers to the way that a cost changes in relation to changes in the activity*
* An **activity** refers to a measure of the organization’s output of products or services.

|  |
| --- |
| **Assumption.** For Job Order and Process Cost systems, the text *assumes that a single factor is associated with overhead costs in producing a unit of output*, **i.e., a single unit-level cost driver***.*  For Activity-Based-Costing, we assume multiple factors associated with overhead. |

**ACTIVITY ANALYSIS, COST BEHAVIOR, AND COST ESTIMATION**

**CHAPTER 6**

**COST BEHAVIOR PATTERNS**

* **Variable costs**
* **Step-variable costs**
* **Fixed costs**
* **Step-fixed costs**
* A **semivariable cost (mixed cost)**
* A **curvilinear cost** costs.
* The **relevant range** reflects therange of activity within which managers expect a company to operate, allowing the prediction of cost behavior with some certainty.

**COST ESTIMATION METHODS**

**In cost estimation, the goal is to *estimate* a linear cost function in the following form.**

Y = a + bx

Total Cost = Fixed Costs + Variable Costs

Total Cost = Fixed Costs + (variable cost per unit x # units)

We estimate the equation in a variety of ways:

* Visual fit
* High-low method (we use this method for exams)
* Regression (better method to use)

**HIGH-LOW METHOD**

The **high-low method** *considers only two points of data*, **the highest and lowest, for activity within the relevant range**.

High-Low estimation computes the following:

|  |  |  |
| --- | --- | --- |
| 1. **Variable costs per unit** | = | Difference in Total Costs |
|  |  | Difference in Activity |

1. **Total Fixed costs = Total Costs – Total Variable** **Costs**

**REGRESSION METHODS**

**OLS Regression**

The **least-squares regression method** is a statistical approach that is both objective and considers all data points.

* The regression line is in the form Y = a + bX, where X is the **independent variable** and Y is the **dependent variable.**

***COST BEHAVIOR***

* **Variable costs**
* **Fixed costs**
* **Step-fixed, step-variable, semivariable, curvilinear costs**

***RELEVANT RANGE***

The range of activities within which a given total fixed cost or unit variable cost will be unchanged.

**IN THIS COURSE, *WE ASSUME THAT THE VARIABLE COST FUNCTION IS LINEAR WITHIN A RELEVANT RANGE*.**

**JOB ORDER COSTING**

**CHAPTER 3**

**ENVIRONMENT**

* Distinct production jobs that are significantly different.
* Usually job-order or batch production
* Costs are accumulated by job or batch

**OVERHEAD**

**Overhead Application**

* Generally, overhead is allocated during a period using a **predetermined overhead rate** (***budgeted overhead / budgeted activity***)
* **Overhead is applied using some type of cost driver, usually volume based (e.g., direct labor, machine hours)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  | | --- | --- | --- | | **Predetermined manufacturing overhead rate per unit of activity** | = | Budgeted (estimated, predicted) total manufacturing overhead cost for the year | |  |  | Budgeted (predicted) units of activity | |  | | | |

|  |  |
| --- | --- |
| **Manufacturing Overhead** | |
| Debited for **actual overhead costs** incurred | Credited for **overhead applied**, using *predetermined overhead rate* |
| (1) Ending balance | (2) Ending balance |

1. Overhead is **under-applied**
2. Overhead is **over-applied.**

**At period-end, the amount of over (under) applied is zeroed out and allocated (prorated) among**

* Work in process inventory
* Finished goods inventory
* Cost of goods sold

Note: In Activity-Based Costing, multiple overhead cost pools are used, and for each cost pool, overhead will be over/under applied at year-end.

**CHAPTER 4**

Process Costing and Hybrid Product Costing

With a **PROCESS-COSTING SYSTEM,** a company works in a **repetitive production environment,** *manufacturing a large number of like units in a continuous flow.*

**In Process Costing, Costs Are Normally Accumulated By Department.**

**EQUIVALENT UNITS**

In a manufacturing process with continuous production, some units are unfinished at period-end.

***Equivalent units***.

* The amount of manufacturing activity that has been applied to a batch of physical units after adjusting for the stage of completion.

**Equivalent-unit calculations are made for:**

* Direct materials
* Conversion cost (direct labor and overhead)

When *computing the cost of a unit*, ***we base the related calculations on equivalent units, not physical units***.

* **Conversion costs are usually assumed to be added continuously throughout the process in text problems.** Thus, if 100 units are 60% of the way through the process, the company is said to have performed 60 equivalent units of work during the period.
  + *Make the assumption if information to the contrary is not provided*
* **Direct materials, in contrast, are usually added at discrete points in text problems.** When considering materials, determine at what point the ending in-process units are and then evaluate whether the materials have been added.
  + If materials have been added, the units are 100% complete with respect to materials; if not, the units are 0% complete.
  + In most text problems and examples, it is assumed that all direct materials are added at the beginning of the process, although this is not necessarily the case.

**ACTIVITY-BASED COSTING AND MANAGEMENT**

**CHAPTER 5**

**ACTIVITY-BASED COSTING (ABC) SYSTEMS**

Many organizations are changing to **activity-based costing (ABC) systems.** This system improves product costing and management decision making

**ABC Involves Two Stages In Allocating Manufacturing Overhead.**

***Stage one****:* The overhead costs of an organization's significant activities are first isolated into **cost pools**. The cost pools (and related costs) fall into the following broad categories, which collectively are known as a **cost hierarchy**:

**Unit level—**activities that must be done for each unit of production (e.g., machining)

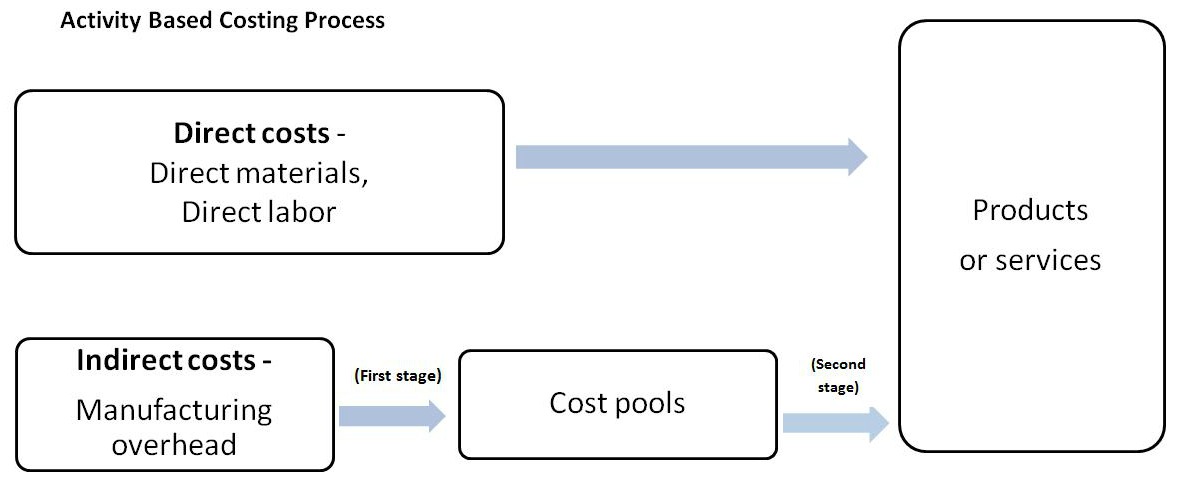
**Batch level—**activities that are performed for each batch of product (e.g., setup, quality-assurance, and receiving)

**Product-sustaining level—**activities that are performed to support an entire product line (e.g., engineering)

**Facility (or general operations) level—**activities that are required for the entire manufacturing process to occur (e.g., plant management, plant maintenance, and depreciation)

***Stage two****:* The next step involves identification of a **cost driver** for each pool.

**How A Two-Stage Product Costing System Works.**



The **first-stage** cost objects (cost pools) are the overhead accounts (e.g., machine-related costs and direct labor-related costs) captured by the cost accounting system.

* The **two-stage approach** separates manufacturing overhead into two or more cost pools
* The allocation in the first stage permits selection of multiple cost drivers that are associated with the incurrence of costs.
* The allocation of overhead costs to departments is not as simple as it is when overhead accounts are used because the costs are not necessarily recorded at the department level.

In the second stage, cost pool costs are assigned to objects.

ABC uses multiple (and many non-unit) drivers because more than one item drives the costs of an organization.

* + No single cost driver can accurately assign overhead when products use activities differently and consume costs in a disproportionate manner.

**The distinctive feature of activity-based costing is that it recognizes that overhead costs are caused by activities and that activities may not be caused solely by volume, but by other types of activities.** Cost drivers for the activities should reflect the cost incurrence in the activity, even if cost is not caused by volume.

**COST-VOLUME-PROFIT ANALYSIS**

**CHAPTER 7**

**COST-VOLUME-PROFIT (CVP) ANALYSIS**

**Key Concept.** An **organization's costs are categorized into variable and fixed components** **before beginning the analysis.**

**BREAKEVEN**

**Breakeven can be computed in dollars or units**.

**ASSUMPTIONS UNDERLYING CVP ANALYSIS**

* The **behavior of *total revenue* is linear within the relevant range**.
* The **behavior of *total expenses* is linear within the relevant range.** This assumption dictates that
  1. expenses can be categorized as fixed, variable, or semivariable and
  2. efficiency and productivity remain as predicted.
* The ***sales mix remains constant* over the relevant range**.
* *Inventory levels at the beginning and end of the accounting period are the same*. This assumption implies that during the period, the number of units sold equals the number of units produced.

**Three approaches to computing break-even**:

* **contribution-margin approach** 
  + **Dollars**
  + **Units**
* **equation approach**

**THE CONTRIBUTION-MARGIN APPROACH**

**Contribution Margin (in dollars)**

* **Contribution margin** per unit (in dollars) =
  + Selling price per unit- Variable expenses per unit

**Contribution Margin Ratio**

|  |  |  |
| --- | --- | --- |
| **Contribution Margin Ratio** | = | Contribution Margin *per unit (1)* |
|  |  | Sales Price *per unit* |

1. Sales price per unit – variable costs per unit

***BREAK-EVEN VOLUME (UNITS)***

|  |  |  |
| --- | --- | --- |
| **Break-Even Volume (units)** | = | Fixed Costs |
|  |  | Unit $ Contribution Margin |

***BREAK-EVEN IN DOLLARS***

1. **Multiply the break-even point in units by the selling price.**

OR

1. Use the **contribution margin ratio**

|  |  |  |
| --- | --- | --- |
| **Break-Even Volume (sales dollars)** | = | Fixed Costs |
|  |  | Contribution Margin Ratio |

**EQUATION APPROACH**

**Break-even point ($) = Total variable expenses + Total fixed expenses**

**TARGET PROFIT**

Break-even can be modified to determine the level of sales needed to produce a particular **target net profit.**

***Contribution Margin Approach- Units***

|  |  |  |
| --- | --- | --- |
| **Target Profit (units)** | = | Fixed Costs + Target Profit |
|  |  | Unit $ Contribution Margin |

***Contribution Margin Approach-Sales Dollars***

|  |  |  |
| --- | --- | --- |
| **Target Profit (sales dollars)** | = | Fixed Costs + Target Profit |
|  |  | Contribution Margin Ratio |

**SAFETY MARGIN**

Safety margin = Budgeted sales - Break-even sales

Can be computed in units or dollars

**CVP ANALYSIS WITH MULTIPLE PRODUCTS**

* The **contribution margin must be weighted by the sales mix**.
* The **sales mix** is the number of units sold of a given product relative to the total units sold.
* A **weighted-average unit contribution margin** is calculated by multiplying a product's contribution margin by its sales mix percentage, and then summing the results for individual products.
* The result is divided into fixed expenses to arrive at the break-even point in "units." *These "units" are really a commingled market basket of goods*.
* As a final step, the sales-mix percentages are multiplied by the number of "units" to calculate individual product sales to break even.

**Note: a change in a firm's sales mix will alter the break-even point.**

**COST STRUCTURE AND OPERATING LEVERAGE**

* The **cost structure** of an organization is the ***relative proportion of fixed and variable costs.*** 
  + The higher the proportion of fixed costs, the higher the operating leverage
* **The greater the proportion of fixed costs, the greater the impact on profit from a given percentage change in sales revenue.**
* The degree of operating leverage can be measured as follows:

|  |
| --- |
| **Operating leverage factor** **=** **Total contribution margin Net income** |

**The operating leverage factor, when multiplied by the percentage change in sales revenue, will equal the percentage change in net income.**

**CONTRIBUTION MARGIN INCOME STATEMENT**

The text illustrates how the contribution margin version of the income statement is useful to management.

|  |  |
| --- | --- |
|  | Sales |
| - | Variable expenses (including variable OH) |
| = | Contribution Margin |
| - | Fixed expenses |
|  | Net Income |

***Note: this format is not in accordance with GAAP.***

It is used for internal decision making purposes

**BALANCED SCORECARD**

**CHAPTER 12**

**BALANCED SCORECARDS**

We introduced the balanced scorecard and its vocabulary.

The **balanced scorecard** is a balanced approach to the area of performance evaluation. Employees are evaluated on a series of financial and nonfinancial measures in a variety of areas.

* *Financial measures summarize the results of past*.
* *Nonfinancial measures concentrate on current activities, namely, activities that will drive future financial performance.*

Many balanced scorecards integrate performance measures in four key areas:

* ***Financial measures***
* ***Internal operations***
* ***Customer satisfaction***
* ***Learning and growth***

**DECISION MAKING, RELEVANT COSTS & BENEFITS**

**CHAPTER 14**

**RELEVANT INFORMATION**

The information gathered should be relevant to the opportunity or problem at hand.

**Relevant information** involves costs and benefits that

1. ***Differ among the alternatives being considered***
2. ***Are future oriented.***

**Both guidelines must be met.**

**Sunk costs** are past costs that have already been incurred.

* *Such costs are irrelevant in decision making* because the amounts cannot be changed by any of the alternatives under review.

A **differential cost** is the net difference in cost between two alternatives.

An **opportunity cost** is the cost of a forgone alternative.

* Companies must frequently pass up profitable (beneficial) projects. The profit (benefit) forgone becomes an opportunity cost to the firm, and such costs are relevant in the decision-making

**SPECIAL DECISION SITUATIONS**

1. Accept a Special Order
2. Make or Buy
3. Add or Drop a Product, Service, or Department
4. Joint Products: Sell or Process Further

**Cost behavior**: *Unless told otherwise, students should assume that total fixed costs remain fixed and only total variable costs change*.

**SPECIAL ORDERS**

**Organization *with Sufficient Capacity***

* Opportunity costs not an issue
* Assume that unused capacity exists to meet the special order unless otherwise indicated
* Generally, only the variable costs are relevant in producing the special order
  + Fixed costs are fixed over the relevant range
  + Any change in fixed costs would have to explicitly be provided in the problem

**Organization *at Capacity***

* *The opportunity cost of the lost contribution margin from regular, higher-priced sales must be factored into the decision.*

**MAKE OR BUY (PRODUCE IN-HOUSE OR OUTSOURCE)**

*This situation requires careful consideration of fixed costs.*

The total cost per unit of a product or service includes a unitized portion of fixed cost

**ADD OR DROP A SERVICE, PRODUCT, OR DEPARTMENT**

The key is the proper handling of fixed costs and determination if such amounts are **avoidable** or **unavoidable**.

The manager should isolate costs that will disappear if the service, product, or department is dropped.

In many cases, fixed costs are not avoidable, particularly allocated common costs.

The contribution margin lost from the activity to be dropped must also be considered.

**JOINT PRODUCTS: SELL OR PROCESS FURTHER**

The products become identifiable from each other at the **split-off point.**

Management must frequently decide whether to sell the products at split-off or incur additional cost beyond split-off (called **separable cost)** and then sell the goods for a higher price.

**Joint costs incurred prior to split-off are not relevant when making the sell-at-split-off or-process-further decision**, because these costs will be incurred regardless of the alternative selected.

**OTHER FACTORS IN DECISION MAKING**

**Allocation Of Limited Resources**

Decisions may involve the use of limited labor hours, limited materials, and limited machine time.

When only one limited resource is present, **a company should focus on products that have the greatest amount of contribution margin per unit of the scarce resource**.

**Pitfalls to Avoid**

* Ignore sunk costs.
* Beware of unitized fixed costs, i.e., the average fixed cost per unit, although fixed costs do not change in total.
* Beware of allocated fixed costs; identify the avoidable costs.
* Pay special attention to identifying and including opportunity costs in the analysis of alternatives.