Accounting Department – Second Stage

# Intermediate accounting
# Second semester
# 2022/2023

## Inventory

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# Inventory Classification and Systems:

## Classification:

Inventories are:

- items held for sale, or
- goods to be used in the production of goods to be sold

Businesses with Inventory:

Merchandiser or Manufacturer

# Type of Business:

## 1- **Merchandiser:**

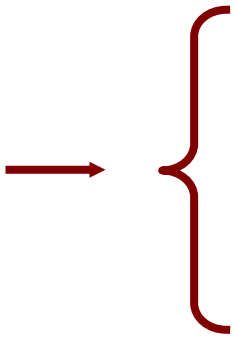
- One inventory account
- Purchase goods ready for sale

| **Balance Sheet** (in thousands) | |
|---|---|
| **Current assets** | |
| Cash | $ 285,000 |
| Marketable securities | 530,000 |
| Accounts receivable | 149,000 |
| Merchandise inventory | 777,000 |
| Prepaids | 33,000 |
| Total current assets | 1,774,000 |
| **Investments:** | |
| Invesment in ABC bonds | 321,657 |
| Investment in UC Inc. | 253,980 |
| Notes receivable | 150,000 |
| Land held for speculation | 550,000 |
| Sinking fund | 225,000 |
| Pension fund | 653,798 |

## 2-Manufacturer:

Three accounts:

- Raw materials
- Work in process
- Finished goods



| **Balance Sheet** (in thousands) | |
|---|---|
| **Current assets** | |
| Cash | $285,000 |
| Marketable securities | 530,000 |
| Accounts receivable | 149,000 |
| Inventory | |
| Raw materials | 210,000 |
| Work in process | 417,000 |
| Finished goods | 150,000 |
| Total inventory | 777,000 |
| Prepaids | 33,000 |
| Total current assets | 1,774,000 |
| **Investments:** | |
| Invesment in ABC bonds | 321,657 |

# Control:

Two systems for maintaining inventory records:

## 1-Perpetual system:

1. Purchases of merchandise are debited to Inventory.
2. Freight-in, purchase returns and allowances, and purchase discounts are recorded in Inventory.
3. Cost of goods sold is debited and Inventory is credited for each sale.
4. Physical count done to verify Inventory balance.

The perpetual inventory system provides a continuous record of Inventory and Cost of Goods Sold.

## 2-Periodic system:

1. Purchases of merchandise are debited to Purchases.
2. Ending Inventory determined by physical count.
3. Calculation of Cost of Goods Sold:

| | |
|---|---|
| Beginning inventory | $ 100,000 |
| Purchases, net | 800,000 |
| Goods available for sale | 900,000 |
| Ending inventory | (125,000) |
| Cost of goods sold | $ 775,000 |

| | Perpetual System | | | Periodic System | | |
|---|---|---|---|---|---|---|
| 1. | Beginning inventory (100 units at $7 = 700) | | | | | |
| 2. | Purchase 900 units at $7: | | | | | |
| | Inventory | 6,300 | | Purchases | 6,300 | |
| | Accounts payable | | 6,300 | Accounts payable | | 6,300 |
| 3. | Sale of 600 untis at $14: | | | | | |
| | Accounts receivable | 8,400 | | Accounts receivable | 8,400 | |
| | Sales | | 8,400 | Sales | | 8,400 |
| | Cost of goods sold | 4,200 | | | | |
| | Inventory | | 4,200 | | | |
| 4. | Adjusting entries (ending inventory = 400 units @ $7 = $2,800) | | | | | |
| | No Entry Necessary | | | Inventory | 2,100 | |
| | | | | Cost of goods sold | 4,200 | |
| | | | | Purchases | | 6,300 |

**Inventory Costing:**

Unit costs can be applied to quantities on hand using the following costing methods:

- Specific Identification
- First-in, first-out (FIFO)
- Last-in, first-out (LIFO)
- Average-cost

**Cost Flow Assumptions**

## 1-Specific Identification Method:

An actual physical flow costing method in which items still in inventory are specifically costed to arrive at the total cost of the ending inventory.

- Practice is relatively rare.
- Most companies make assumptions (Cost Flow Assumptions) about which units were sold

**Example:** Assume that Crivitz TV Company purchases three identical 46-inch TVs on different dates at costs of $700, $750, and $800. During the year Crivitz sold two sets at $1,200 each.

| | | | |
|---|---|---|---|
| **Purchases** | | | |
| February 3 | 1 TV | at | $700 |
| March 5 | 1 TV | at | $750 |
| May 22 | 1 TV | at | $800 |
| **Sales** | | | |
| June 1 | 2 TVs | for | $2,400 ($1,200 × 2) |

**Example**: If Crivitz sold the TVs it purchased on February 3 and May 22, then its cost of goods sold is $1,500 ($700  $800), and its ending inventory is $750.

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## First: (periodic Systems):

**Example:** Assume that Houston Electronics uses a periodic inventory system.

**HOUSTON ELECTRONICS**
Astro Condensers

| Date | Explanation | Units | Unit Cost | Total Cost |
|---|---|---|---|---|
| Jan. 1 | Beginning inventory | 100 | $10 | $ 1,000 |
| Apr. 15 | Purchase | 200 | 11 | 2,200 |
| Aug. 24 | Purchase | 300 | 12 | 3,600 |
| Nov. 27 | Purchase | 400 | 13 | 5,200 |
| | Total | 1,000 | | $12,000 |

A physical inventory at the end of the year determined that during the year Houston sold 550 units and had 450 units in inventory at December 31.

# Calculate the Inventory Costing according the following methods

# (periodic Systems)

## 1-First-in, first-out (FIFO):

Earliest goods purchased are first to be sold.

**COST OF GOODS AVAILABLE FOR SALE**

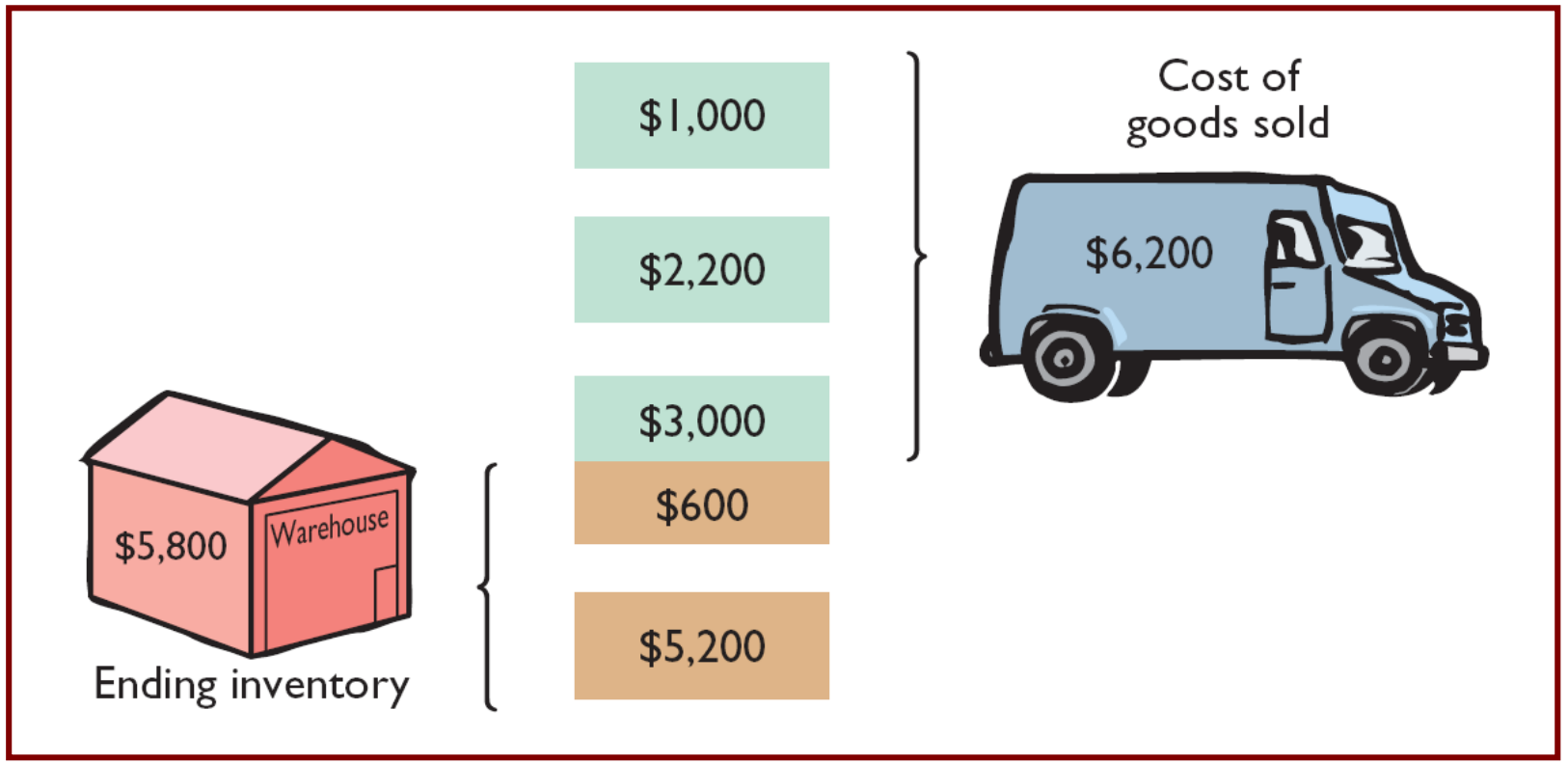
| Date | Explanation | Units | Unit Cost | Total Cost |
|---|---|---|---|---|
| Jan. 1 | Beginning inventory | 100 | $10 | $ 1,000 |
| Apr. 15 | Purchase | 200 | 11 | 2,200 |
| Aug. 24 | Purchase | 300 | 12 | 3,600 |
| Nov. 27 | Purchase | 400 | 13 | 5,200 |
| | Total | 1,000 | | $12,000 |

**STEP 1: ENDING INVENTORY**

| Date | Units | Unit Cost | Total Cost |
|---|---|---|---|
| Nov. 27 | 400 | $13 | $5,200 |
| Aug. 24 | 50 | 12 | 600 |
| Total | 450 | | $5,800 |

**STEP 2: COST OF GOODS SOLD**

| | |
|---|---|
| Cost of goods available for sale | $12,000 |
| Less: Ending inventory | 5,800 |
| Cost of goods sold | $ 6,200 |


$1,000
$2,200
$3,000
$600
$5,200
Cost of goods sold
$6,200
$5,800
Warehouse
Ending inventory

## 2- Last-in, first-out (LIFO)

Latest goods purchased are first to be sold.

**COST OF GOODS AVAILABLE FOR SALE**

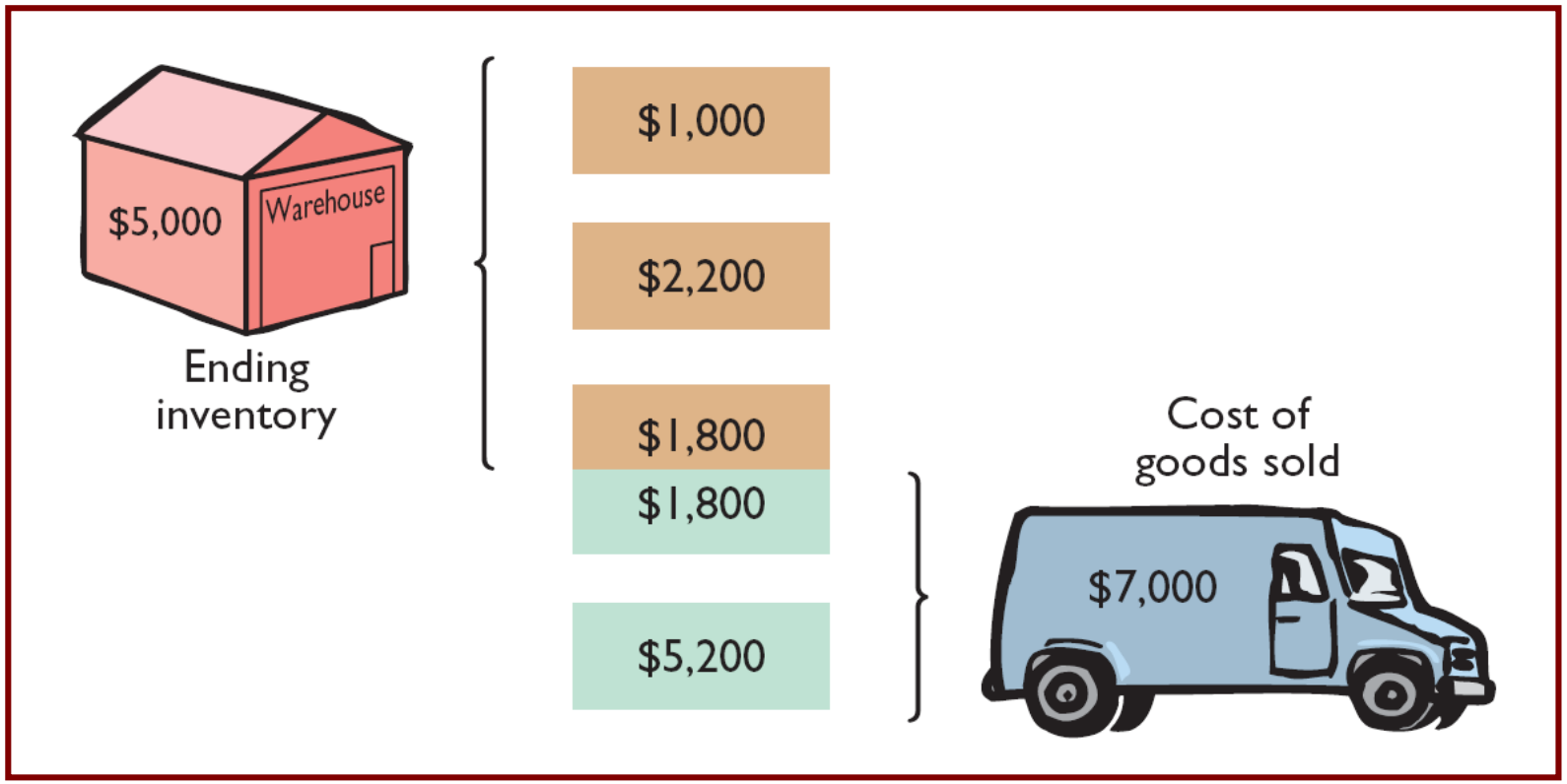
| Date | Explanation | Units | Unit Cost | Total Cost |
|---|---|---|---|---|
| Jan. 1 | Beginning inventory | 100 | $10 | $ 1,000 |
| Apr. 15 | Purchase | 200 | 11 | 2,200 |
| Aug. 24 | Purchase | 300 | 12 | 3,600 |
| Nov. 27 | Purchase | 400 | 13 | 5,200 |
| | Total | 1,000 | | $12,000 |

**STEP 1: ENDING INVENTORY**

| Date | Units | Unit Cost | Total Cost |
|---|---|---|---|
| Jan. 1 | 100 | $10 | $1,000 |
| Apr. 15 | 200 | 11 | 2,200 |
| Aug. 24 | 150 | 12 | 1,800 |
| Total | 450 | | $5,000 |

**STEP 2: COST OF GOODS SOLD**

| | |
|---|---|
| Cost of goods available for sale | $12,000 |
| Less: Ending inventory | 5,000 |
| Cost of goods sold | $ 7,000 |


$5,000
Warehouse
Ending inventory
$1,000
$2,200
$1,800
$1,800
$5,200
Cost of goods sold
$7,000

# 3-Average-Cost:

Allocates cost of goods available for sale on the basis of weighted average unit cost incurred.

**COST OF GOODS AVAILABLE FOR SALE**

| Date | Explanation | Units | Unit Cost | Total Cost |
|---|---|---|---|---|
| Jan. 1 | Beginning inventory | 100 | $10 | $ 1,000 |
| Apr. 15 | Purchase | 200 | 11 | 2,200 |
| Aug. 24 | Purchase | 300 | 12 | 3,600 |
| Nov. 27 | Purchase | 400 | 13 | 5,200 |
| | Total | 1,000 | | $12,000 |

**STEP 1: ENDING INVENTORY**

| | | | | |
|---|---|---|---|---|
| $12,000 | ÷ | 1,000 | = | $12.00 |
| **Units** | | **Unit Cost** | | **Total Cost** |
| 450 | | $12.00 | | $5,400 |

**STEP 2: COST OF GOODS SOLD**

| | |
|---|---|
| Cost of goods available for sale | $12,000 |
| Less: Ending inventory | 5,400 |
| Cost of goods sold | $ 6,600 |

# Financial Statement and Tax Effects:

**HOUSTON ELECTRONICS**
Condensed Income Statements

| | FIFO | LIFO | Average Cost |
|---|---|---|---|
| Sales | $11,500 | $11,500 | $11,500 |
| Beginning inventory | 1,000 | 1,000 | 1,000 |
| Purchases | 11,000 | 11,000 | 11,000 |
| Cost of goods available for sale | 12,000 | 12,000 | 12,000 |
| Ending inventory | **5,800** | **5,000** | **5,400** |
| Cost of goods sold | 6,200 | 7,000 | 6,600 |
| Gross profit | 5,300 | 4,500 | 4,900 |
| Operating expenses | 2,000 | 2,000 | 2,000 |
| Income before income taxes[3] | 3,300 | 2,500 | 2,900 |
| Income tax expense (30%) | 990 | 750 | 870 |
| Net income | **$ 2,310** | **$ 1,750** | **$ 2,030** |

## Second: (Perpetual Systems):

## Example:

**HOUSTON ELECTRONICS**
Astro Condensers

| Date | Explanation | Units | Unit Cost | Total Cost | Balance in Units |
|---|---|---|---|---|---|
| 1/1 | Beginning inventory | 100 | $10 | $ 1,000 | 100 |
| 4/15 | Purchases | 200 | 11 | 2,200 | 300 |
| 8/24 | Purchases | 300 | 12 | 3,600 | 600 |
| 9/10 | Sale | 550 | | | 50 |
| 11/27 | Purchases | 400 | 13 | 5,200 | 450 |
| | | | | $12,000 | |

Assuming the Perpetual Inventory System, compute Cost of Goods Sold and Ending Inventory under FIFO, LIFO, and Average cost

# Calculate the Inventory Costing according the following methods (Perpetual Systems)

## 1-First-in, first-out (FIFO):

Earliest goods purchased are first to be sold.

| Date | Purchases | | Cost of Goods Sold | Balance (in units and cost) | |
|---|---|---|---|---|---|
| January 1 | | | | (100 @ $10) | $ 1,000 |
| April 15 | (200 @ $11) | $2,200 | | (100 @ $10)<br>(200 @ $11) | $ 3,200 |
| August 24 | (300 @ $12) | $3,600 | | (100 @ $10)<br>(200 @ $11)<br>(300 @ $12) | $ 6,800 |
| September 10 | | | (100 @ $10)<br>(200 @ $11)<br>(250 @ $12) | ( 50 @ $12) | $ 600 |
| | | | $6,200 | | |
| November 27 | (400 @ $13) | $5,200 | | ( 50 @ $12)<br>(400 @ $13) | $5,800 |

Cost of Goods Sold

Ending Inventory

## 2- Last-in, first-out (LIFO)

Latest goods purchased are first to be sold.

| Date | Purchases | | Cost of Goods Sold | Balance (in units and cost) | |
|---|---|---|---|---|---|
| January 1 | | | | (100 @ $10) | $1,000 |
| April 15 | (200 @ $11) | $2,200 | | (100 @ $10)<br>(200 @ $11) | $3,200 |
| August 24 | (300 @ $12) | $3,600 | | (100 @ $10)<br>(200 @ $11)<br>(300 @ $12) | $6,800 |
| September 10 | | | (300 @ $12)<br>(200 @ $11)<br>( 50 @ $10) | (50 @ $10) | $ 500 |
| | | | $6,300 | | |
| November 27 | (400 @ $13) | $5,200 | | (50 @ $10)<br>(400 @ $13) | $5,700 |

**Cost of Goods Sold**

**Ending Inventory**

# 3-Average-Cost:

Allocates cost of goods available for sale on the basis of weighted average unit cost incurred.

| Date | Purchases | | Cost of Goods Sold | Balance (in units and cost) | |
|---|---|---|---|---|---|
| January 1 | | | | (100 @ $10) | $1,000 |
| April 15 | (200 @ $11) | $2,200 | | (300 @ $10.667) | $3,200 |
| August 24 | (300 @ $12) | $3,600 | | (600 @ $11.333) | $6,800 |
| September 10 | | | (550 @ $11.333) | (50 @ $11.333) | $ 567 |
| | | | $6,233 | | |
| November 27 | (400 @ $13) | $5,200 | | (450 @ $12.816) | $5,767 |

**Cost of Goods Sold**

**Ending Inventory**

Q1: GDE Company has the following inventory, purchases, and sales data for the month of March.

**Inventory:**

| | | | |
|---|---|---|---|
| March 1 | 200 units | 4.00 | 800 |

**Purchases:**

| | | | |
|---|---|---|---|
| March 10 | 500 units | 4.50 | 2,250 |
| March 20 | 400 units | 4.75 | 1,900 |
| March 30 | 300 units | 5.00 | 1,500 |

**Sales:**

| | |
|---|---|
| March 15 | 500 units |
| March 25 | 400 units |

The physical inventory count on March 31 shows 500 units on hand.

**Instructions**

Under a **periodic inventory system**, determine the cost of inventory on hand at March 31 and the cost of goods sold for March under (a) (FIFO), (b) (LIFO), and (c) average-cost.

Q2:GDE Company has the following inventory, purchases, and sales data for the month of March.

**Inventory:**

| | | | |
|---|---|---|---|
| March 1 | 200 units | 4.00 2 | ,800 |

**Purchases:**

| | | | |
|---|---|---|---|
| March 10 | 500 units | 4.50 | 2,250 |
| March 20 | 400 units | 4.75 | 1,900 |
| March 30 | 300 units | 5.00 | 1,500 |

**Sales:**

| | |
|---|---|
| March 15 | 500 units |
| March 25 | 400 units |

The physical inventory count on March 31 shows 500 units on hand.

**Instructions:**

Under a **perpetual inventory system**, determine the cost of inventory on hand at March 31 and the cost of goods sold for March under (a) FIFO, (b) LIFO, and (c) average-cost.