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I. CHAPTER 11 – INVENTORY

The purpose of this chapter of The Guide is to explain the concept of inventory and to discuss the policies, guidelines, and procedures associated with inventory on the Boulder campus.

II. OVERVIEW AND OBJECTIVES

A. Overview

Each department’s purchases of goods for consumption or resale may represent inventory. Departments that hold inventory must maintain inventory records which accurately reflect the valuation of the inventory at the end of each month. Additionally, these departments must conduct an annual inventory.

B. Objectives

The principal accounting objectives of maintaining inventories are:
1. To allow for the proper assignment of costs to an accounting period.
2. To present an accurate portrayal of the department’s assets on the university’s financial statements.

III. DEFINITION OF INVENTORY

The State of Colorado year-end closing instructions define inventories as those that total $35,000 or more per location. If inventory value drops below $35,000 in the normal course of business (until it is restocked), it continues to be classified as inventory on the books. However, if a decision is made to permanently reduce the inventory below $35,000, it should be reclassified from an asset to an expense.

In order to minimize year-end workload, inventories of less than $35,000 will not be booked in the general ledger inventory codes. These smaller inventories should be expensed to cost of goods sold as they are purchased. As a valid internal control function, departments may choose to continue their inventory records to verify and control quantities on hand. However, these smaller inventory amounts should not be booked by the department to the Finance System.

Some examples of inventory are:
- Merchandise or publications offered for sale
- Maintenance supplies
- Postage
- Raw materials used in production
- Office supplies
- Laboratory supplies
- Medical supplies
IV. INTERNAL CONTROLS

Each department is responsible for safeguarding the university’s assets, whether those assets are in the form of cash, merchandise, or supplies. A system of internal control is needed to ensure that appropriate management of these assets occurs. Good inventory internal controls incorporate the following.

1. Written departmental inventory management policy and procedures. Staff must be trained on departmental policy and procedures.

2. Adequate separation of duties between those responsible for the physical inventory (ordering, receiving, distributing/selling) and those responsible for the inventory accounting records (approving payments, charging departments/customers, maintaining the perpetual inventory balance in the Finance System and reconciling the Finance System).

3. An internal inventory system that records all inventory activity, including acquisitions, sales, returns and adjustments.

4. Adjusting the Finance System inventory value for all inventory activity, including acquisitions, sales, returns, and adjustments.

5. Securing the inventory in such a manner so that inventory may not be removed or otherwise affected without a record being made of the event.

6. Conducting a periodic count and costing of the inventory. This must be done at least annually for the university’s June 30 fiscal year-end. More frequent counts should be made depending upon the size and vulnerability to misappropriation of the inventory. Compare the count and costing to the inventory record system and to the Finance System. All differences should be investigated and explained.

V. ESTABLISHING AND MAINTAINING AN INVENTORY

All purchases of inventoriable goods are to be recorded by using The Finance System account range 030000-049999. Selection of the specific account codes is determined by the type of inventory.

030000: Inventory-Sales External to University
This account presents the value of inventories on hand that are expected to be sold to customers outside of the university.

040000: Inventory-Internal Sales/Consumed
This account is similar to account 030000, above, but consumption takes place inside of the university, and is charged as an expenditure.
040001–0400xx: User Defined Inventory Accounts
Accounts within this range are similar to account 040000. Consumption of the goods takes place within the university and is charged to supplies or other appropriate expense accounts. A complete list of the accounts in the Finance System can be accessed from the Office of University Controller website. Another option is to use the Cognos m-Fin Account Tree List report (Public Folders > Finance folder > Look Ups folder) which is selected by account type—revenue, expense, etc.

The value of a department’s inventory normally fluctuates due to purchases and sales that occur during each accounting period. The Balance Sheet Statement Detail reports the inventory value. The Revenue and Expense Statement Summary presents the amount of sales and provides the amount for cost of goods sold.

Inventories increase when purchases are made or when goods are returned by customers. Inventories decrease as a result of sales, consumption of goods, or when goods are returned to vendors.

Each department with an inventory is required to keep inventory records. These records must clearly and accurately show the actual inventory count and inventory valuation at any given date. Such records can be as sophisticated as an inventory software package, or as simple as a card file system.

Example
Department X has an inventory of maintenance supplies. The department purchases 40 cans of floor wax at $6.00 per can, and pays $4.00 in freight ($0.10 per can) on the purchase. Total cost of the purchase is $244.00.

Debit Inventory, Program FOPPS - account 0400xx $244.00
Credit Cash (affected via PO/SPO voucher) $244.00

Department X used four cans of wax. A journal entry is prepared to remove the four cans that were used from the inventory in a departmental FOPPS. The cost of each can includes the added burden for freight: $244.00/40 cans = $6.10 per can. Thus, the total cost for the four cans is $24.40.

Debit Expense, Program FOPPS - account 515109 $ 24.40
Credit Inventory, Program FOPPS - account 0400xx $ 24.40

The new inventory balance is $219.60. This is comprised of 36 cans at $6.10 each.
Department X now sells 10 cans of floor wax to Department Y at $7.00 per can. An IN is used to record the sale; and a journal entry is used to remove the cans sold from inventory.

The IN to record the sale (10 cans at $7.00 = $70.00):

Debit Dept Y Exp, Program FOPPS - account 515109 $ 70.00
Credit Dept X Rev, Program FOPPS - account 380100 $ 70.00

The journal entry to record the cost of goods sold and to remove the cans sold from inventory (10 cans at $6.10 = $61.00):

Debit Cost of Goods, Program FOPPS - account 450200 $ 61.00
Credit Inventory, Program FOPPS - account 0400xx $ 61.00

Thus, Department X has $9.00 in net revenue ($70.00 Revenue minus $61.00 Cost of Goods) and has an inventory balance of $158.60, 26 cans of floor wax.

Prior to the fiscal year end closing on June 30, Department X completes its annual physical inventory count and discovers that two cans of the floor wax were defective. A journal entry is used to adjust the physical inventory for the defective cans.

The journal entry to adjust the inventory (two cans at $6.10 = $12.20) is:

Debit Physical Inventory Adjustment, Program FOPPS - account 450300 $ 12.20
Credit Inventory, Program FOPPS - account 0400xx $ 12.20

Thus, the adjusted inventory balance for Department X is $146.40. Twenty-four cans of floor are reported on the department’s Reporting System Balance Sheet Statement Detail Report.

VI. VALUING THE INVENTORY

Several methods exist for valuing the inventory on hand. The university uses First-In, First-Out (FIFO) and Weighted Average. There are advantages and disadvantages to both methods, but each assigns a value to the goods remaining in inventory. The method chosen must be applied consistently from year to year. A change of method must be approved in writing by CCO. Contact your Area Accountant if a change in method is under consideration. A brief description of each method follows.
A. FIFO

The assumption under FIFO is that the items in inventory are sold or used in the order in which they are purchased. Thus, the first items acquired are assumed to be the first ones sold or used. Therefore, the items in the inventory are assumed to be those from the most recent purchases, and would be priced at the cost of those recent purchases. Documentation showing the cost of those purchases should be maintained and easily accessible.

Example

Department X purchases 40 cans of floor wax at $6.00 per can, and pays $4.00 in freight ($0.10 per can) on the purchase. Total purchase cost is $244.00.

- Debit Inventory, Program FOPPS - account 0400xx $244.00
- Credit Cash (via PO/SPO voucher) $244.00

A few days later, Department X makes another purchase of the same floor wax, after being notified by Department Y that a large quantity of floor wax will be needed within a few days. This time, Department X purchases 100 cans of floor wax at $5.50 per can, and pays $10.00 in freight ($0.10 per can). Total purchase cost is $560.00.

- Debit Inventory, Program FOPPS - acct 0400xx $560.00
- Credit Cash (via PO/SPO voucher) $560.00

Total inventory now on hand is 140 cans of floor wax, for a total of $804.00.

- The first 40 cans have a unit cost of $6.10/can.
- The next 100 cans have a unit cost of $5.60/can

Department X fills Department Y’s order of 120 cans of floor wax, at $7.00 per can. An IN is used to record the sale, and a journal entry is used to remove the cans sold from inventory.

The IN to record the sale (120 cans at $7.00 = $840.00) is:

- Debit Dept Y Expense, Pgm FOPPS - account 515109 $840.00
- Credit Dept X Revenue, Pgm FOPPS - account 380100 $840.00

Use a journal entry to deduct the value from the inventory account (the initial 40 cans purchased at $6.10 per can for a total of $244.00 and the 80 cans from the second purchase at $5.60 per can for a total of $448.00):

- Debit Cost of Goods, Pgm FOPPS - acct 450200 $692.00
- Credit Inventory, Program FOPPS - acct 0400xx $692.00
Thus, Department X has $148.00 in net revenue ($840.00 - $692.00), and has an inventory balance of $112.00 (20 cans of floor wax at $5.60 a can).

**B. Weighted Average**

The assumption under the weighted average method is that the average cost of the inventory is influenced or “weighted” by the number of units acquired at each price. It is computed by dividing the total cost of beginning inventory plus purchases, by the total number of units in these two categories, and then multiplying the result by the number of units in ending inventory. This method is generally associated with periodic inventories. Documentation supporting the average cost calculation of each inventory item should be maintained and easily accessible.

\[
\text{Weighted Average Cost} = \frac{\text{Total Cost of Beginning Inventory} + \text{Purchases}}{\text{Total # of units in Beginning Inventory} + \text{Purchases}} \times \text{X # of units in ending Inventory}
\]

**Example:**

Department X purchases 40 cans of floor wax at $6.00 per can, paying $4.00 in freight ($0.10 per can) on the purchase. The total purchase cost is $244.00.

- Debit Inventory, Program FOPPS - account 0400xx $244.00
- Credit Cash (via PO/SPO voucher) $244.00

A few days later, Department X makes another purchase of the same floor wax, after being notified by Department Y that a large quantity of floor wax will be needed within a few days. This time, Department X purchases 100 cans of floor wax at $5.50 per can, and pays $10.00 in freight ($0.10 per can). Total purchase cost is $560.00.

- Debit Inventory, Program FOPPS - acct 0400xx $560.00
- Credit Cash (via PO/SPO voucher) $560.00

Total inventory on hand is 140 cans of floor wax for a total of $804.00. Each can has a weighted average cost of $5.7429. This is calculated by taking the initial 40 can purchase cost of $244.00 plus the additional 100 can purchase cost of $560.00, and dividing this combined cost by the 140 total cans purchased: ($244.00 + $560.00)/140 = $5.7429 per can.

Department X fills Department Y’s order of 120 cans of floor wax, at $7.00 per can. An IN is used to record the sale, and a journal entry is prepared to remove the cans sold from inventory.

The IN to record the sale (120 cans at $7.00 = $840.00) is:
Debit Dept Y Expense, Pgm FOPPS - account 515109 $840.00
Credit Dept X Revenue, Pgm FOPPS - account 380100 $840.00

Use a journal entry to deduct the value from the inventory account (120 cans at $5.7429 = $689.15). The journal entry is:

Debit Cost of Goods, Pgm FOPPS - acct 450200 $689.15
Credit Inventory, Program FOPPS - acct 0400xx $689.15

Thus, Department X has $150.85 in net revenue, and has an inventory balance of $114.86 (20 cans of floor wax at $5.7729 per can).

VII. YEAR-END PHYSICAL INVENTORY

Each department with an inventory is required to take a physical count at least once a year to ensure that an accurate asset value is reported on the Balance Sheet Summary Report and that the cost of goods sold is recorded correctly on the Revenue and Expense Summary. This annual count should be completed within the three months prior to fiscal year-end close (June 30). Each department’s responsible person needs to schedule the actual count, establish cutoff procedures, and supervise the physical inventory process.

Cutoff procedures are designed to ensure that inventory transactions are properly recorded and included in the current year financial statement. Inventory quantities include all items on hand or in transit. The inclusive and exclusive inventory items in transit are based on passage of title. In general, inventory items received but not paid are included in the physical inventory. Inventory items shipped to customers are deducted from the physical inventory. The responsible person must also review the inventory adjustments and amounts that will appear on the fiscal year-end Balance Sheet.

The employee responsible for the departmental inventory must complete the following:

1. Physical Inventory Summary Report (Exhibit 1 provides an example, and Exhibit 2 is a Master Form.)
2. Physical Inventory Test Count (Exhibit 3. This serves as supporting documentation to the Physical Inventory Summary Report.)
3. Inventory Reconciliation (Exhibit 4 provides an Example, and Exhibit 5 is a Master Form.)
4. Written departmental physical inventory instructions.
5. One copy of the final physical inventory listing extended value.
6. One copy of the adjusting journal entry.
This documentation shall be retained by the department in accordance with the Retention of University Records APS and the UCB Records Retention Schedule. CCO may contact the department and conduct a review of the above-listed documentation. In addition, the above documentation must be made available to the auditors upon request.

VIII. EXHIBITS

Examples and Master Forms for the inventory reports listed below are found on the pages that follow. These forms can either be used as is or departments may develop their own forms as long as substantially the same information is recorded.

<table>
<thead>
<tr>
<th>Exhibit</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhibit 1</td>
<td>Example</td>
<td>Physical Inventory Summary Report</td>
</tr>
<tr>
<td>Exhibit 2</td>
<td>Master Form</td>
<td>Physical Inventory Summary Report</td>
</tr>
<tr>
<td>Exhibit 3</td>
<td>Master Form</td>
<td>Physical Inventory Test Count</td>
</tr>
<tr>
<td>Exhibit 4</td>
<td>Example</td>
<td>Inventory Reconciliation</td>
</tr>
<tr>
<td>Exhibit 5</td>
<td>Master Form</td>
<td>Inventory Reconciliation</td>
</tr>
</tbody>
</table>
Exhibit 1

**Physical Inventory Summary Report**

University of Colorado Boulder

<table>
<thead>
<tr>
<th>Department</th>
<th>Forms Center</th>
<th>Location</th>
<th>Regent 188</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Person</td>
<td>Susan, Storekeeper</td>
<td>Extension</td>
<td>2-5555</td>
</tr>
<tr>
<td>Date</td>
<td>June 30, 2014</td>
<td>Observer</td>
<td>Ollie, Observer</td>
</tr>
</tbody>
</table>

**Business Overview**

- **Operation**: Distribution of forms to departments
- **Document Flow**:
  - Purchases: SPO/PO; Last purchase was 6/18/13
  - Sales: IN’s only
  - Other: n/a

**Accounting Review**

- **Program’s Balance Sheet FOPPS & Account**: 2x - 1xxxx - xxxxx - 040002
- **Program’s Summary FOPPS & Account**: 2x - 1xxxx - xxxxx - 450200
- **Operation Allocation JE’s**: none
- **Costing Method**: weighted average
- **Mark-Up %**: 10%

**Physical Count**

- **General Instructions**: Items counted by shelf or cabinet
  - **Environment**: Storeroom is neat and orderly. Stock numbers were clearly marked

**Cut-Off Controls**

- **Purchases**: 6/28/2014
- **Sales**: Emergency only during closure. None between 6/28 and 7/2.
- **INs**: Same as above

**Count Crew**

Susan, Storekeeper; Andy, Assistant; Alice, Accountant; Hanna, Hourly; William, Workstudy
Counting Method  One person counted while the second person recorded on pre-printed inventory sheets. The counter and recorder traded positions after 30 minutes of counting.

Cash Sales  none

Store Closure  June 28 - July 2

Obsolete/Damaged Stock  Stored in a clearly marked, separate area. These items are not in the Finance System inventory valuations, nor are they part of the departmental inventory listing.

Summary  Count proceeded quickly and efficiently. Count team is knowledgeable about store.

Recommendations  Store closure may be needed for a shorter time period.

Conclusion  Susan, Storekeeper and crew have the forms supply well under control. Procedures for receiving and sales are in place, and the procedures are followed.
### Physical Inventory Summary Report

*MASTER FORM*

**University of Colorado Boulder**

<table>
<thead>
<tr>
<th>Department</th>
<th>Location</th>
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<th>Date</th>
<th>Observer</th>
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#### Business Overview

- **Operation**
- **Document Flow:**
  - Purchases
  - Sales
  - Other

#### Accounting Review

- **Program’s Balance Sheet FOPPS & Account**
- **Program’s Summary FOPPS & Account**
- **Operation Allocation JE’s**
- **Costing Method**
- **Mark-Up %**

#### Physical Count

- **General Instructions**
- **Environment**

#### Cut-Off Controls

- **Purchases**
- **Sales**
- **INs**
- **Count Crew**
### Inventory

<table>
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<th>Counting Method</th>
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<tr>
<td>Cash Sales</td>
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<tr>
<td>Store Closure</td>
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<tr>
<td>Obsolete/Damaged Stock</td>
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#### Summary

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<th>Recommendations</th>
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<tr>
<td>Conclusion</td>
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Exhibit 3

Physical Inventory Test Count
Fiscal Year Ended June 30, 20___

Department: ________________________________

Count Team: ________________________________

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<thead>
<tr>
<th>Identification #</th>
<th>Description</th>
<th>Team Count</th>
<th>Observer Count</th>
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Exhibit 4

Inventory Reconciliation EXAMPLE
University of Colorado Boulder
Fiscal Year Ended June 30, 2014

Finance System Program FOPPS: 2x-1xxxx-xxxxxx-040002

**Book** Value per Program Statement as of **06/30/14**: 76,632.00

Adjustments:

- Items counted, not on Finance System: Business voucher 3,215.00
- #7890 6/28/14, (Inventory Reconciliation Form)

Adjusted **Book** Value as of **06/30/14**: 79,847.00

**Physical** Value as of **06/30/14**: 79,328.00

Adjustments:

- 
- 
- 
- 
- 

Adjusted **Physical** Value as of **06/30/13**: 79,328.00

**Inventory Variance:**

Journal Entry Date **07/14/14**

| DR | 2x-1xxxx-xxxxxx-450200 | 519.00 |
| CR | 2x-1xxxx-xxxxxx-040002  | 519.00 |

Exhibit 5
### Inventory Reconciliation

**MASTER FORM**

University of Colorado Boulder  
Fiscal Year Ended June 30, _______

Finance System Program FOPPS: ____________________________

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<td>Adjustments:</td>
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<td>Adjusted <strong>Book</strong> Value as of ________________:</td>
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<tr>
<td>Adjusted <strong>Physical</strong> Value as of ______________:</td>
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**Inventory Variance:**

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<tbody>
<tr>
<td>Journal Entry Date</td>
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