# MANAGEMENT ACCOUNTING UNIT-2

SEMESTER V - T.Y.B.COM (H) – NEP (Academic Year 2025-26)

4 Faculty of Commerce, The Maharaja Sayajirao University of Baroda

Management Accounting CHP-1

## Unit-II Chapter -1 Activity Based Costing

*Note: The study material is not exhaustive. These are only guidelines; students are requested to refer the reference books.*

**Traditional Approach:** Traditionally, indirect costs are distributed to end products on the assumption that products consume sources in proportion to the production volumes. The main steps in this approach are: ***First,*** allocation and apportionment of overhead, to various production departments and service departments.' ***Second,*** apportionment of service departments' overhead to production departments. ***Third,*** absorption of production departments' overhead by the end products. In this traditional approach, overhead are absorbed on the basis of machine hours or labour hours or direct wages, etc.

**Problem of Under costing and Over costing:** When 2 company produces a variety of products or services which place varying demands on resources, traditional costing uses an average overhead rate for all activities (like labour hour rate or machine hour rate) to allocate costs to cost objects i.e. Products or Services. Such a costing approach that uses broad averages for charging overhead uniformly to products or services is known as cost smoothing or **Peanut-butter costing**. Cost smoothing leads to under costing of certain products and over costing of other products. Where one products under costed, it results in other product being over costed because total amount of overhead remain unchanged. This is known as product cost cross-subsidisation.

**Activity Based Costing (ABC)**

Activity based costing is not an alternative to job costing or process costing. Rather it is a modern tool of charging overhead costs in which costs are first traced to activities and then to products or jobs. Its main focus is on activities performed in the production of goods or services. Thus activities become the focal points for cost computation. Costs are charged to products or services based on individual products' consumption of each activity. It recognises that jobs, products, services etc. do not directly consume resources but consume activities, which consume resources. In brief, in activity based costing, overheads are first assigned to activities and then absorbed by cost objects on the basis of activities consumed by these cost objects.

Activity based costing (ABC) is a new and scientific approach developed by Cooper and Kaplan (1988) for assigning overhead to end products, jobs and processes. It aims to rectify the problem of inaccurate cost information due to selection of wrong bases of indirect cost apportionment. In the words of Cooper and Kaplan ***"ABC systems calculate the costs of individual activities and assign costs to cost objects such as product and services on the basis of activities undertaken to produce each product or service."*** In this system, overheads are assigned to activities or grouped into cost pools before they are charged to cost objects, i.e., jobs or products. According to C.I.M.A., London, activity based costing is ***"cost attribution to cost units on the basis of benefits received from indirect activities, i.e., ordering, setting up, assuring quality, etc."***

**Basic Terms:**

In order to understand ABC, one should be familiar with the meaning of the following terms:

**Activity:** An activity may be defined as a particular task or unit of work with a specific purpose. Examples of activities are - placing of a purchase order, setting up of a machine, after sales service, etc.

**Cost object:** It is an item for which cost measurement is required. For example, a product, a service, a job or a customer etc. are cost objects.

**Cost pool:** A cost pool is a term used to indicate grouping of costs incurred on a particular activity which drives them. The various cost pools in a manufacturing company include the Purchasing Department, Receiving Department, Material Handling, Machine Set-up, Inspection and Quality Control, Research and Development, Customer Service, and Production Control.

**Cost driver** is a factor that causes a change in the cost of an activity. It plays a crucial role in cost allocation by identifying the basis on which costs are assigned to different activities or cost objects. Cost drivers are broadly categorized into two types: resource cost drivers and activity cost drivers.

- **Resource cost driver** is a measure of the quantity of resources consumed by an activity. It is used to assign the cost of a resource (such as labour, materials, or equipment) to an activity or cost pool. For instance, the number of purchase orders placed will influence the cost of materials to be procured. Similarly, the number of times machines are set up determines the cost associated with machine setup. Resource cost drivers help in accurately allocating overheads based on the actual consumption of resources by specific activities.
- **Activity cost driver** is a measure of the frequency and intensity of demand placed on activities by cost objects (such as products, services, or customers). It is used to assign the cost of activities to the cost objects that consume them. Activity cost drivers can be of two types: transaction drivers and duration drivers. Transaction drivers measure how often an activity occurs—for example, the number of customer orders or purchase orders processed. Duration drivers measure the time required to perform an activity—for example, setup hours or inspection hours. By using appropriate activity cost drivers, organizations can more accurately trace activity costs to the final cost objects, leading to better cost control and decision-making.

**Examples of Cost Driver by Function**

| Business Function | Examples of Cost Drivers |
|---|---|
| Production | Number of units, Number of set-ups |
| Marketing | Number of sales personnel, Number of sales orders |
| Customer Service | Number of service calls, Number of products serviced, Hours spent on servicing products |

**Examples of Cost Driver by Activity**

| Activity | Cost Driver |
|---|---|
| Machine set-up | Number of production runs |
| Purchase materials | Number of orders placed |
| Material handling | Number of parts |
| Inspection | Inspection per item |
| Quality testing | Hours of test time |
| Receiving material | Number of receiving orders |
| Packing | Number of packing orders |
| Store delivery | Number of store deliveries |

## Steps/Stages of Activity Based Costing:

The different steps or stages in ABC system can be given as follows:

| Sr. No. | Step | Description |
|---|---|---|
| 1 | Identify Activities | The first step is to recognize and list the main activities performed in the organization. These can be production-related or support-related. ABC typically identifies more activity centers than traditional costing systems. While traditional systems may use around 10–15 cost centers, ABC may involve 40 or more activity groups, depending on how the management chooses to subdivide the organization's operations. This higher granularity increases accuracy in cost allocation. |
| 2 | Create Cost Pools | Once activities are identified, various overhead items (e.g., electricity, maintenance, salaries) are traced to these activities based on what causes them. Overheads are grouped into cost pools or cost buckets for each distinct activity. Both primary and support activities are considered, ensuring a comprehensive mapping of indirect costs. |
| 3 | Determine Activity Cost Drivers | An activity cost driver is a factor that influences or "drives" the cost of an activity. Examples include machine hours, labor hours, number of setups, or number of purchase orders. The appropriate driver is selected based on what best reflects the cause-and-effect relationship between the activity and the consumption of resources. These cost drivers link activity costs to products or cost objects. |
| 4 | Activity Cost Driver Rate | For each activity, calculate the cost per unit of the cost driver. This is known as the activity cost driver rate, and is computed using the formula:<br>Activity Cost Driver Rate = Total Cost of Activity / Total Units of Cost Driver<br>These rates function similarly to overhead absorption rates in traditional costing, but they are activity-specific and thus more accurate. |
| 5 | Assign Activity Costs to Products or Cost Objects | The next step is to allocate overhead costs to products based on the extent to which they consume each activity. This is done by multiplying the activity cost driver rate by the actual units of the cost driver consumed by each product. This ensures that overheads are assigned based on actual usage rather than arbitrary volume-based allocations. |

## Advantages of Activity Based Costing:

ABC is being implemented by a growing number of companies around the world. It has primarily developed on account of the limitations of traditional system of charging overhead. Its main advantages are the following:

| | | |
|---|---|---|
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**Advantages of Activity Based Costing:**

ABC is being implemented by a growing number of companies around the world. It has primarily developed on account of the limitations of traditional system of charging overhead. Its main advantages are the following:

1. **Accurate and reliable.** ABC is a more accurate and reliable system of ascertaining product costs as it is based on cause and effect relationship in cost incurrence.
2. **Better Pricing Decisions.** It overcomes the problem of under costing and overcasting as a result of which management is able to make more judicious selling price decisions based on accurate costs.
3. **Realistic approach.** Distribution of overhead based on activities is an objective and realistic approach. As against this, traditional method of overhead costing uses more arbitrary bases of apportionment of overhead and is a subjective approach.
4. **Control of costs.** ABC produces more meaningful information regarding cost behavior and enables management to control many fixed overhead by exercising more control over those activities which cause these fixed overhead.
5. **Greater cost efficiency.** ABC helps to identify those activities which are unnecessary and may be weeded out and thus achieving greater cost efficiency.

6. **Useful cost driver rates.** ABC helps, through its cost driver rates, in the modification of existing products and also in the development of new products.

## EXAMPLES

1. **ONTEX Ltd.,** has produced a batch of 3,000 Smart TAB with Material Cost Rs. 32 per unit and Labour Cost Rs. 56 per unit. Company follows Traditional Costing System and charged overheads based on Machine hours. Management requests you to apply Activity Based Costing System to have idea for accurate cost per unit. For this purpose, based on detail study, management identified following budgeted overheads and budgeted cost driver volumes:

| Cost Pool | Overhead(Rs.) | Cost Driver | Volume |
|---|---|---|---|
| Software Installation | 10,00,000 | No. of installation | 20,000 |
| Material procurement | 1,87,500 | No. of orders | 375 |
| Quality control | 7,05,550 | No. of inspections | 28,222 |
| Set-up | 3,52,000 | No. of set-ups | 440 |
| Machinery | 12,00,000 | No. of machine hours | 8,000 |
| Maintenance | 5,54,950 | Maintenance hours | 5,045 |

The usage activities of the said batch are as follows:

| | | | |
|---|---|---|---|
| Set-up | 40 | Inspection | 2,240 |
| Machine hours | 650 | Material orders | 25 |
| Maintenance hours | 1,100 | Software installation | 3,000 |

You are required to calculate total cost and cost per unit of the batch under Activity Based Costing System and Traditional Costing System Also calculate total cost and cost per unit if overheads are absorbed as ii) 200% of Material Cost iii) 150% of Direct Wages.

2. **SKY Ltd**. produces and sells two products namely **MOON** and **STAR**. Company provides the following information for the year.

| **Particulars** | **MOON** | **STAR** |
|---|---|---|
| No. of units produced | 10,000 | 5,000 |
| Direct Material Cost (Rs.) | 5,00,000 | 2,00,000 |
| Direct Labour Cost (Rs.) [**@ the rate Rs. 10 per hour**] | 3,00,000 | 1,00,000 |
| Machine hour (per unit) | 5 | 4 |
| Number of Set-ups | 30 | 20 |
| Number of Order | 30 | 10 |
| Number of Movement | 20 | 10 |

Company follows Traditional Costing System and charged overheads based on **Direct Labour hours**. Management requests you to apply Activity Based Costing System to have idea for accurate cost per unit. For this purpose, on the basis of detail study, following Activity and Cost Driver are identified:

| **Activity** | **Cost Driver** | **Cost (Amt.Rs.)** |
|---|---|---|
| Material Receipt and Storage | No. of Movement | 3,75,000 |
| Material procurement | No. of Order | 2,80,000 |
| Machine Set up | No. of Set-up | 8,45,000 |
| Running and Maintenance | Machine Hours | 14,00,000 |
| **Total** | | **29,00,000** |

**You are required to calculate the cost per unit of each product under Traditional Costing System and Activity Based Costing System and also make comment.**

3. ABC Company manufactures four products, A, B, C and D, using the same manufacturing process. The following data are available relating to a production period:

| Product | Volume | Material Cost per unit (₹) | Direct Labour per unit | Machine Time per unit | Labour Cost Cost per unit (₹) |
|---|---|---|---|---|---|
| A | 500 | 5 | 0.5 hour | ¼ hour | 3 |
| B | 5,000 | 5 | 0. 5 hour | ¼ hour | 3 |
| C | 600 | 16 | 2 hours | 1 hour | 12 |
| D | 7,000 | 17 | 2.5 hours | 1.5 hours | 9 |

Total Production Overheads are as under:

| Particulars | ₹ |
|---|---|
| Machine related Costs | 37,749 |
| Set-up Costs | 4,250 |
| Ordering Costs | 1,920 |
| Material Handling Costs | 7,560 |
| Spare parts Administration Costs | 8,400 |
| | 59,879 |

The Company absorbs factory overheads to the products by machine hour rate method and the hourly rate per machine hour is ₹4.80. The overheads cost of the products are as under:

| Product | ₹ |
|---|---|
| A | 1.2 |
| B | 1.2 |
| C | 4.8 |
| D | 7.2 |

The production overheads activities for the period reveal the following:

| Products | No. of Set-ups | No. of Materials Orders | No. of times Materials handled | Number of Spare parts |
|---|---|---|---|---|
| A | 1 | 1 | 2 | 2 |
| B | 6 | 4 | 10 | 5 |
| C | 2 | 1 | 3 | 1 |
| D | 8 | 4 | 12 | 4 |

Prepare a Statement of Overhead Cost for all the Products, by using Activity Based Costing and compare the results with Traditional Costing.

4. If material handling cost is Rs.1,00,000 for the month and during this period total 100 requisitions are raised for material. Calculate material handling cost chargeable to product "F", if 25 requisitions are raised for product "F".

A.Rs.80,000 B.Rs.20,000 **C.Rs.25,000** D.Rs.20,020.

5. D Ltd. produces 600 units each of its products H1 and H2. The labour cost per unit is Rs.200 and Rs.300 respectively and the labour is paid at the rate of 100 per hour. Total overheads incurred during the period amounted to Rs.93,000. Find the overhead absorption rate under traditional costing if overheads are levied as per labour hour.

**A.Rs.31** B. Rs20.18 C.Rs.77.5 D. Rs.30.

## SELF STUDY

1. The budgeted overheads and cost driver volumes of **ABC Ltd.** are as follows:

| Cost Pool | Budgeted Overhead (Rs.) | Cost Driver | Budgeted Volume |
|---|---|---|---|
| Material procurement | 5,83,000 | No. of orders | 1,100 |
| Material handling | 2,51,600 | No. of movements | 680 |
| Set-up | 4,16,000 | No. of set-ups | 520 |
| Maintenance | 9,66,000 | Maintenance hours | 8,400 |
| Quality control | 1,75,500 | No. of inspections | 900 |
| Machinery | 7,20,000 | No. of machine hours | 24,000 |

The company has produced a batch of 5000 units components of product CORE, its Material Cost was Rs. 3 per unit and Labour Cost was Rs. 5 per unit. The usage activities of the said batch are as follows:

| | | | | | |
|---|---|---|---|---|---|
| Material orders | 26 | Machine hours | 1,800 | Inspection | 28 |
| Set-up | 25 | Maintenance hours | 690 | Material movements | 18 |

**Calculate cost driver rates that are used for tracing appropriate amount of overheads to the said batch and Ascertain the cost of batch of components using ABC.**

2. **Pavan Ltd.** produces and sells two calculators namely - **BASIC** and **SMART**. Company provides the following information for the year.

| **Particulars** | **BASIC** | **SMART** |
|---|---|---|
| No. of units produced | 1000 | 500 |
| Direct Materials cost **(per unit)** | Rs. 180 | Rs. 240 |
| Direct labour cost **per unit [@ the rate Rs. 40 per hour]** | Rs. 120 | Rs. 160 |
| Machine hour **(per unit)** | 8hrs | 4hrs |

**Total Overheads for the year are:**

Running and Maintenance: Rs. 5,00,000,
Quality Inspection : Rs.7,50,000,
Material Procurement: Rs.2,50,000.

Company follows Traditional Costing System and charges overheads based on **Machine Hours**. Management is in the consideration to apply Activity Based Costing System to have idea for accurate cost per unit. For this purpose, on the basis of detailed study, following Activity and Cost Driver are identified:

| Cost | Driver |
|---|---|
| Running and Maintenance | Machine Hours |
| Quality Inspection | No. of Units |
| Material Procurement | Value of Materials |

**Required to Calculate:**

1. Cost per unit for each product using Conventional Method.
2. Cost per unit for each product using ABC principles.
3. Comment on the reasons for any differences in the cost as per 1 & 2.