

CHAPTER 07 & 08

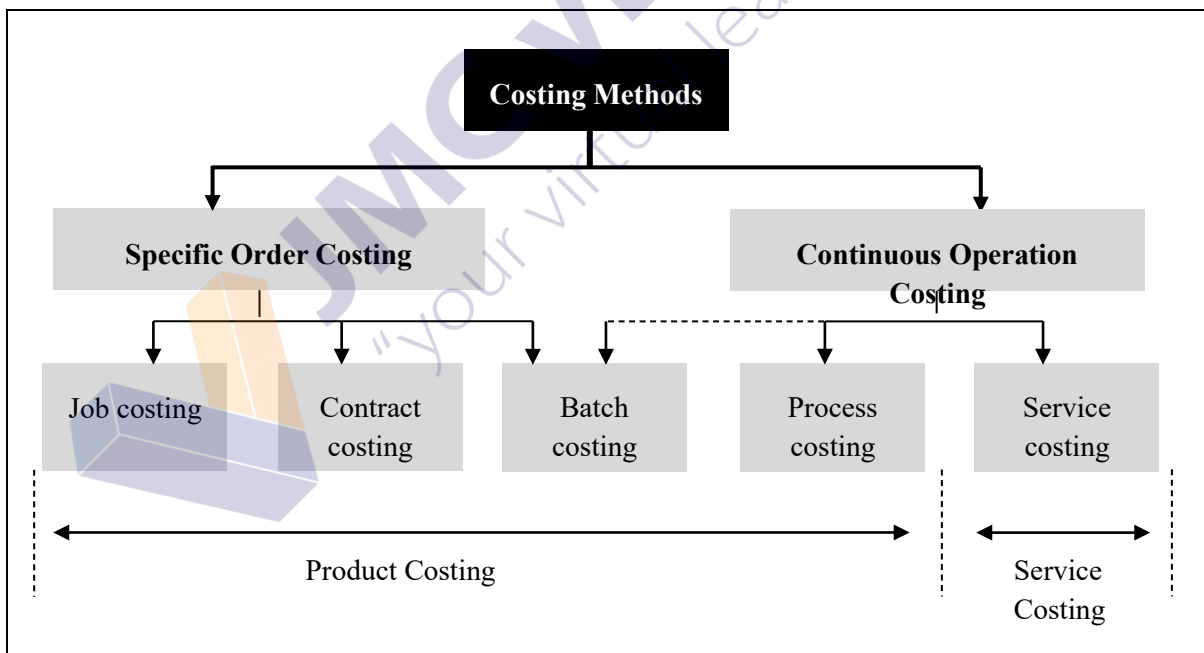
Costing Methods

A costing method is a method used to determine/ascertain the cost of the item being produced. Any organization which is engaged in manufacturing a product or a service uses a costing system which is unique to that business. However there are common features, you can observe in systems used by the entities who are engaged in the same industry.

For example; Garment industry. Features of the systems used by them are almost the same.

All the costing systems which are in practical use, can broadly be categorized in to two; They are,

- (1) Specific order costing systems
- (2) Continuous operation costing systems (uniform costing)



1. Specific order costing systems

Specific order costing systems are appropriate for organizations which produce cost units which are separately identifiable from one another.

There are three (03) types of specific order costing systems.

- (a) Job Costing
- (b) Batch Costing
- (c) Contract Costing

(a) Job costing

Job is a work or an activity which is undertaken by a firm to carry out according to its customer's specifications/requirements.

For example; assembling a computer as per the customer's requirements. The costing system used to determine / ascertain the cost of jobs is called "Job Costing". The main purpose of job costing is to ascertain the cost of the job and thereby the profit or loss on the job.

Job Cost Card (Job Cost Sheet)

This is an important document which is used in Job costing to collect the costs of each Job, while the Job is proceeding. This may be just a card or a computerized file. ie. all the costs incurred on the Job are being recorded on the Job card, while the Job is being carried out.

A specimen format of a Job card is shown in the figure below.



Specimen format of a Job Card

JOB COST SHEET											Job No: 302		
<u>Customer details:</u>					<u>Job description:</u>								
Mr. Ruwan Fernando					Full service plus body wash								
205/2, Hill Street					Toyota Car – WP KM 6875								
Dehiwala					<u>Date</u>								
Mobile : 0772 – xxxxxxx					Under taken : 22/10/2014								
Email : rfd@gmail.com					Started : 23/10/2014								
					To be handed over : 24/10/2014								
Materials					Labour					Production Overheads			
Date	Reqn. No.	Qty.	Price Rs.	Value Rs.	Date	Emp. No.	Hrs.	Rate Rs.	Value Rs.	Hours	O/H Ab. Rate	Rs.	
23/10	212	2 Lts	300	600	23/10	15	5	50	250	8	120	960	
24/10	232	2 Kg	50	100	23/10	11	2	100	200				
					24/10	02	1	250	250				
Total				700	Total				700	Total			960

Expenses		JOB COST SUMMARY		
Description	Rs.	Cost Element	Actual Rs.	Estimate Rs.
	—	Direct Material	700	800
		Direct Labour	700	600
		Direct Expenses	-	-
		Total Direct Cost	1,400	1,400
		Production O/H	960	680
		Production Cost	2,360	2,080
		Admin. O/H (5%)	118	104
		Total Cost	2,478	2,184
		Price Estimate	2,800	2,800
		Profit/(Loss) on the Job	322	616

----- Job card completed by	----- Authorized by	----- Date
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Job costing procedure

The main purpose of job costing is to ascertain (or to calculate) the cost of the Job. This would be basically facilitated by the Job card / Job sheet. Whatever the costs incurred on the Job should be accumulated / collected in the Job Card.

Example (1)

The information given below have been extracted from the cost records of an engineering company in respect of the job No. 232.

Materials issued to the job Rs. 16,040

Direct wages : Dept. A – 120 hours @ Rs. 6 per hour

 Dept. B – 80 hours @ Rs. 4 per hour

 Dept. C – 40 hours @ Rs. 10 per hour

The production overhead expenses are as follows:

Variable : Dept. A – Rs. 10,000 for 500 hours

 Dept. B – Rs. 6,000 for 150 hours

 Dept. C – Rs. 4,000 for 50 hours

Fixed : Rs. 40,000 for 1000 hours

Calculate the total cost of the job no. 232 and the price for the job to earn a profit of 25% on the selling price

Features of Job costing

1. Job is an activity undertaken by a firm to perform according to it's customer's specifications. ie. A Job is a task which consists of a single order or a contract, which is customized to a customer's specific requirements. (customer's specifications).
2. Each job should be separately identifiable and costs should be attributed to each jobs.
3. Since the job is customized, they are heterogeneous and therefore unique. (ie. one differs from the other)
4. A Job is generally completed within a short period. ie. maximum within an accounting period. (not like a contract).
5. Each job is assigned a unique Job code/Job number, so that costs of the Jobs can separately be aggregated and analyzed.
6. As we have already discussed in "Accounting for Jobs", all the costs relevant for the job (ie. material issued, direct labour performed and other direct expenses incurred) are charged to a Job account opened in the code. The costs of all "work in progress" (WIP) are recorded in "WIP Control A/C".
7. Some labour costs, such as "overtime", might be charged either directly to a job or else as an overhead cost, depending on the case for which the costs have arisen.
8. Using an appropriate absorption rate, the share of the factory overhead costs of the job is charged to the Job account. If the Job is incomplete at the end of an accounting period, it should be valued at factory cost and is to be carried forward in Job account. Closing WIP values of all Jobs in progress as at the year end, should be disclosed in statement of financial position under current assets. (these entries are applicable where an absorption costing system is in operation).
9. Alternatively on the completion of the Job, the Job account is charged with an appropriate portion of administrative, selling and distribution overheads after which the total cost of the job can be ascertained. After having determined the total cost of the Job, it is then transferred to finished

goods control A/C, or directly to "Cost of Sales" Account if the Jobs are straightly handed over to the customers.

10. The difference between the agreed selling price and the actual cost incurred on the Job is recognized as the profit on the Job.
11. When the Job is delivered to the customer, total cost of the Job is transferred from the finished goods account to "Cost of Sales" Account. (ie. it becomes a cost of sale)
12. Material costs for each job are traced from the material requisition notes. Labour times on each job are recorded on a job tickets and then charged to the job card. Overhead costs are absorbed in to the jobs using a predetermined O/H absorption rate.

(b) Batch Costing

This is the second form of specific order costing system. A batch can be defined as "a group of similar items / articles which maintains its identity throughout the production". A batch is very similar to a job and the cost unit would be the batch. If to find out the cost per item in the batch, the total cost of the batch should be divided by the number of items included in the batch. The procedure for costing of batches is very similar to that for costing of Jobs.

Example (1)

A company manufactures unique shoes according to customers specifications and had following budgeted overhead for the year.

Department	Budgeted Production Overheads	Budgeted Activity
Cutting	Rs. 120,000	6,000 Machine hours
Fixing	Rs. 200,000	5,000 Labour hours
Finishing	Rs. 150,000	15,000 Labour hours

Selling and administration overheads are to be absorbed at 20% of production cost. The company has undertaken an order from a school to supply 200 pairs of unique shoes.

The serial batch number assigned to this batch is 2002. Following costs have been incurred by the company on batch no 2002.

Material costs (Leather) for the whole order was Rs. 80,000.

Actual hours spent on the batch:

Cutting department	- 2000 Machine hours
Fixing department	- 750 Labour hours
Finishing department	- 1000 Labour hours

Rs. 42,000 was paid for the hire of special fixing machine for this order.

Direct labour hour rates:

Fixing department	- Rs. 40 per hour
Finishing department	- Rs. 20 per hour

According to the company's pricing policy, a 20% margin of selling price is kept on every orders.

You are required to calculate the cost and the selling price per pair of shoes.

(c) Contract Costing

This is another form of specific order costing. This has many similarities to job costing. It is a type of Jobs, but varies only in the size and the completion period. In other words, contract is a form of a Job which is a large scale and continued for a long duration to complete the task. **Contract Costing** is the technique used to ascertain the cost of the contract. The majority of costs relating to a contract are direct costs.

Contract costing can be used in construction contracts such as Building Construction, Highway construction, Mechanical works in large scale such as ship building and other similar works in long term nature.

Special features of contract costing

Following are the special features of contract costing.

- (1) A contract is, undertaken to perform according to it's customer's specifications. (customized)
- (2) It takes a relatively longer period for completion (sometimes it may continue for 2 or 3 accounting periods)

In otherwords, the work is for a relatively longer period. Jobs in large scale may take a long time to complete, perhaps two or three years. Sometimes the contract may be completed within less than twelve months, whereas it may relate to more than one accounting period. In such a case, the profit on the contract is also recognized for more than one accounting period.

- (3) It is a site based job. ie. work is executed at customer's site.

- (4) Materials are purchased and delivered directly to the site or sometimes from the central stores.
- (5) A separate pay-roll is maintained at the site.
- (6) Work is of constructional nature.
- (7) The method of costing is almost similar to "Job Costing".
- (8) Certain jobs / activities of the contract may be given to sub contractors. For example, in a building construction – tiling, painting, wiring, cladding etc.
- (9) Each site may have its own cashier and time keepers.
- (10) Plants and Equipments may be acquired or hired specially for contract.
- (11) Phase-wise payments (Stage-wise payments) are made by the client to the contractor. (These payments are known as progress payments / Interim bill payment)
- (12) As agreed in the contract agreement, the client may retain a percentage (%) of the progress payment (this is called retention money).
- (13) Price of the contract (also known as contract sum) is agreed in advance, by the both parties "client" and "contractor".
- (14) Since each contract is a separate site, all the expenses incurred for a particular contract are directly charged to it. Expenses such as site electricity, Telephone, Salaries of supervisors, are normally classified as overheads, whereas in the context of contracts, they are classified as direct expenses.
- (15) Since the contract takes a long period of time to be complete, Income and expenditure on the contract may fall in to two or more accounting periods.

Progress Payments

When the contract work is proceeding, the contractor may ask for interim payments from the client, depending on the work completed. Such interim payments made by the client based on the extent of work done are called "Progress Payments". For example, in a building construction, the progress payment made when the foundation is completed, first floor is completed ----- etc.

In practical scenarios, the contractor prepares an interim invoice (progress bill/interim bill) to claim such progress payments. This progress bill/Interim invoice is supposed to be submitted to the client with the certificate of the consultant. For this purpose, the consultant nominated/appointed by the client should visit the site at various stages/phases of the contract. After having inspected the progress of the site (contract works) the consultant issues a certificate ensuring the cumulative value (Not the cost) of the work done as at the date of site visit. This certificate should be attached to the payment claim/interim bill, by the contractor.

Retention Money

According to the provisions made in contract agreement, when the client makes progress payments to the contractor, a percentage of the value of work certified is retained. The amount retained so, by the client is called "Retention Money". This amount can be retained by the client, for a specific time period as agreed in the contract agreement. Once that time period lapses, the client is supposed to pay that retained amount to the contractor, after having deducted any losses occurred during such period. In order to recover the loss from the retention money, that should have been a loss due to a fault of the contractor.

The progress payment is calculated as follows.

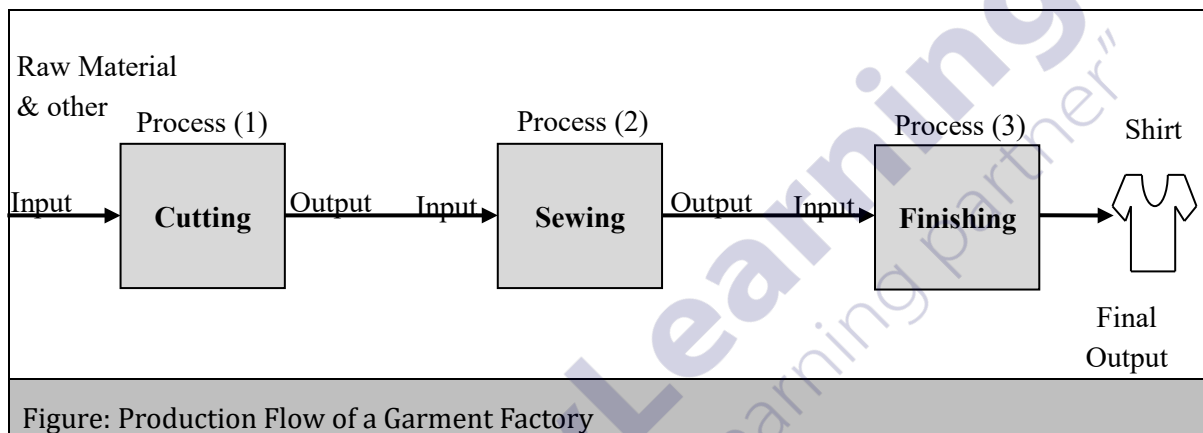
The value of work done and certified	XXX
Less: Retention money (10%)	<u>(XX)</u>
	XXX
Less: Total of previous payment made to date	<u>(XX)</u>
Payment due on the invoice (this bill)	<u>XXX</u>



2. Continuous Operation Costing

2.1 Process Costing

This is one form of continuous operation costing systems. Process costing is used by the organizations where uniform goods are produced in large volume with continuous flow of production. This production flow may contain a number of processes or operations or stages. Here the raw material and other inputs have to pass through two or more processes before completion. For instance, this method of costing is adopted by industries engaged in the manufacturing of textiles, soaps, biscuits, paints, cement, chemicals, medicines, papers, electrical appliances and also oil refining, milk dairy..... Etc. Figure below demonstrates, how do the processes involved in a garment factory operate.



As shown in the above figure, the output of one process becomes the input (Raw material) of the next process and so on until the final product is obtained. Thus, from the last process, the final product comes out.

2.1.1 Comparison between Job Costing and Process Costing

Job Costing Vs. Process Costing

Job Costing	Process Costing
(1) Production is executed on a specific order of a customer.	(1) Production is a continuous flow in anticipation of demand.
(2) Unique products.	(2) Uniform products / Homogeneous products
(3) Jobs may or may not have work-in-progress.	(3) There is always work-in-progress at the beginning or end of the period.
(4) Costs are accumulated for each job.	(4) Costs are accumulated for each process.

(5) Cost is to be found for each job.	(5) Costs are found in total.
(6) Since every job is costed separately, more paper work involved.	(6) Paper work is less.
(7) Job can be performed at business's site or customer's premises.	(7) This is performed only at business's premises.

Process Account and Cost Calculation (*Please prepare notes by yourself using the following formats based on the video discussion.*)

Scenario 01: Normal Process



Per unit cost = Total cost / Total production units

Scenario 02: With Normal Losses

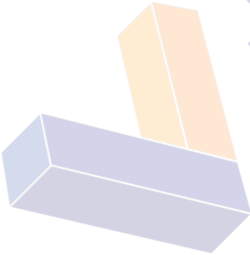


Normal Losses

Because of the nature of the raw material and the nature of the process, some losses are **inherent** and **unavoidable**. This loss is known as normal loss or normal wastage. This type of losses are expected in normal conditions. i.e The percentage of such losses is anticipated by the management on their past experience. The cost of the losses of this type should be absorbed by good units produced

Per unit cost = Total Cost / Expected Output

Expected Output = Input - Normal loss



Scenario 03: With Abnormal Losses



Abnormal Losses

In certain cases, it can be seen that the actual loss exceeds the predetermined normal loss. Any loss exceeding the normal loss is called abnormal loss. In other words, abnormal loss is the extra loss resulting in when actual loss is more than the normal or expected loss. It is caused by accidents, sub-standard materials, carelessness of workers..... etc. Abnormal loss is generally controllable and avoidable. The treatment of normal losses and abnormal losses differ in process costing. Though the costs of the normal loss is absorbed by good production, the cost of the abnormal loss is not absorbed by good production. Abnormal losses are valued at cost as good production. i.e. The unit cost which is used to value good units is also applied for valuation of abnormal loss units.

Input	xxxx
(-) Expected Loss	xxxx
Expected output	xxxx
(-) Actual output	xxxx
Abnormal Loss / (Gain)	xxxx

Per unit cost = Total Cost / Expected Output

Scenario 04: With Abnormal Gain



Abnormal Gain

If the actual loss is less than the loss expected (or normal loss), the difference is known as abnormal gain. In other words, abnormal gain arises when the actual production is more than the production expected. Like abnormal loss, abnormal gain is also valued at cost.

Input	xxxx
(-) Expected Loss	xxxx
Expected output	xxxx
(-) Actual output	xxxx
Abnormal Loss / (Gain)	xxxx

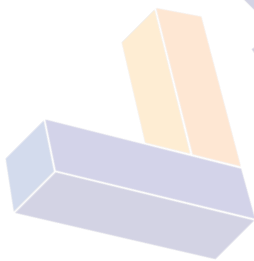
Per unit cost = Total Cost / Expected Output

Scenario 05: With Scrap Value

Cutting

Sewing

Per unit Cost = (Total Cost – Scrap Value of normal loss) / Expected Output



Example 01:

Tasty Lanka Ltd. is a manufacturing company and produces its product “MN” through two consecutive processes. The completed output of Process I is immediately transferred to Process II.

The following information was extracted for the month of December 2019 relating to Process II:

Material transferred from Process I	Rs.250,000/- (25,000 units)
Additional material introduced	Rs.65,250/-
Direct wages and production overheads	Rs.187,250/-
Normal loss	5% on material transferred from Process I and scrap items can be sold at Rs.3/- per unit.
Output from Process II	24,250 units

There were no opening and closing work-in-progress.

You are required to:

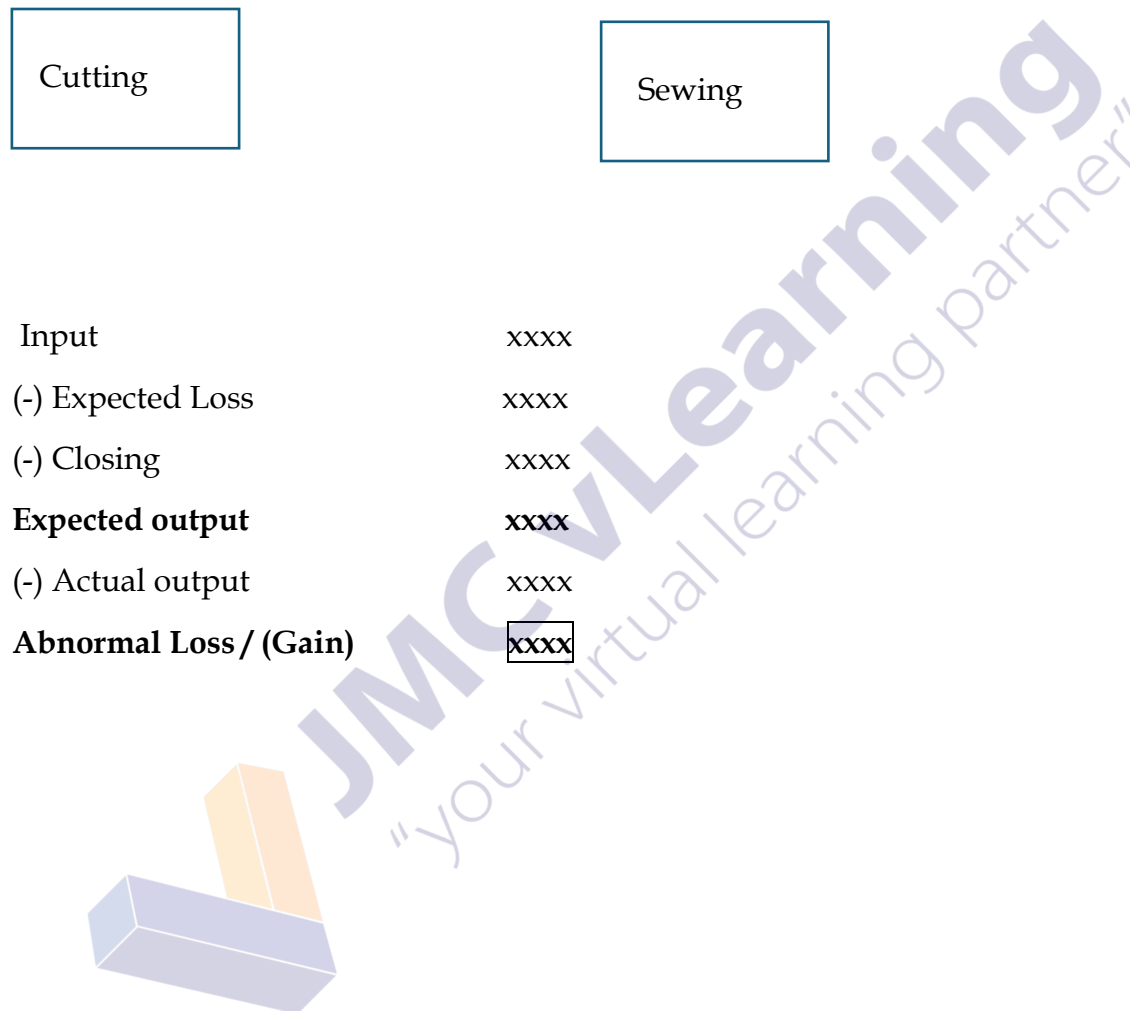
Prepare the Process II account.

Example 02: 2019 July AAT – MAF Question No:08

Scenario 06: Closing Work-in-progress

When units are partly completed at the end of a period, those units are referred to as closing work-in-progress.

In the previous example, we have assumed that no opening and closing stocks of work in progress. We must now look at more realistic examples and consider how to allocate the costs incurred in a period between completed output (i.e. finished output) and partly completed output. (i.e. Closing stock)



Statement of Equivalents Units

Output				
Normal Loss				
Abnormal Loss				
Closing Stock				
Equivalents Units				

Statement of Cost

During the period incurred cost			
Scrap Value of Normal loss			
Total Cost			
Per unit Cost			

Total cost

Example 01:

P Ltd. manufactures Product A through several processes. The following information has been provided for Process I for the month of June 2020:

Direct Material	2,800 kg @ Rs.80/- per kg
Direct Labour	Rs.118,350/-
Variable Overheads	Rs.70,200/-

The total output transferred from Process I to Process II at the end of June 2020 was 2,500 kg. Normal loss is 5% of direct material input and this can be sold for Rs.23/- per kg.

There were 150 kg of closing WIP with the following levels of completion:

Direct Material	100%
Direct Labour	80%
Variable Overheads	60%

You are required to:

Prepare the Statement of Equivalent Units & Cost and the Process I Account

Example 02:

Giga Ltd., manufactures and sells Product H through several consecutive processes.

The following information has been extracted for the month of June 2021 with regard to Process II:

Input transferred from Process I (6,500 kg)	Rs.2,271,100/-
Direct labour	Rs.944,840/-
Variable overheads	Rs.416,520/-
Output	5,440 kg
Normal loss	5% of input transferred from Process I and it can be sold at Rs.110/- per kg.

At the end of the month, there were 780 kg of closing work-in-progress with the following levels of completion:

Input transferred from Process I	: 100%
Direct Labour	: 75%
Variable Overheads	: 50%

You are required to:

Prepare the Statement of Equivalent Units & Cost and Process II account.

2.1.5 Opening Work-in-progress

If there are partly completed units at the end of one period, there will be opening work-in-progress at the beginning of the next period. In most of practical cases, both opening and closing work-in-progress stocks are present.

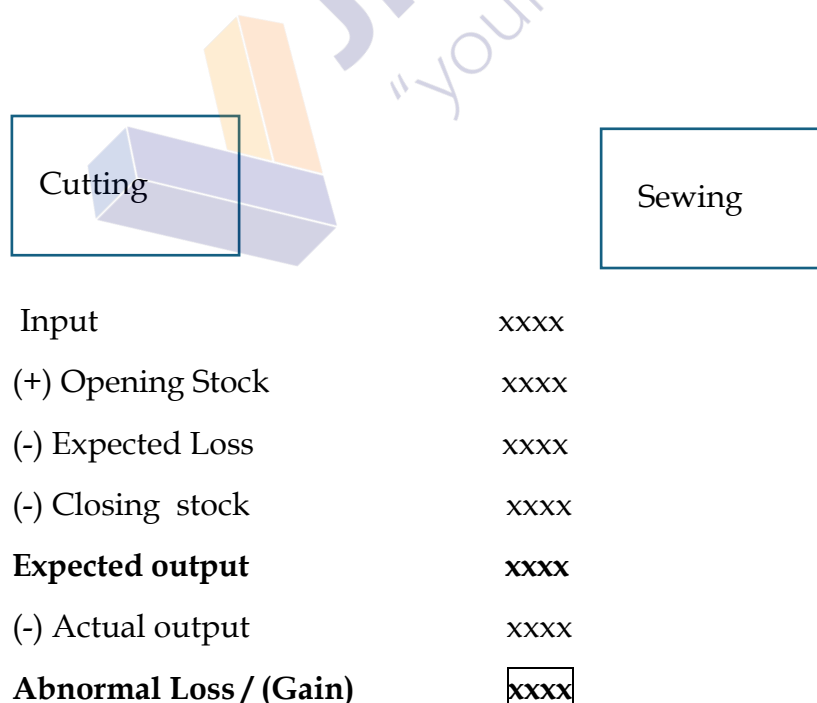
Since costs tend to vary from period to period, each lot may carry different unit costs. The procedure of calculating equivalent production for opening work-in-progress units depends on, the costing method being used.

There are two methods of costing that are used in practice.

- (1) First - In - First - Out (FIFO) Method
- (2) Average Cost (AVCO) Method

2.1.6 First - In - First - Out (FIFO) Method:

Under this method of costing, it is assumed that the incomplete units of the opening stock are first taken up for completion, and the new units are taken up next for manufacture during the period. Thus, the closing work-in-progress of the current year includes the incomplete units belonging only to the current year.



Statement of Equivalents Units

Opening Stock				
Output				
Normal Loss				
Abnormal Loss				
Closing Stock				
Equivalents Units				

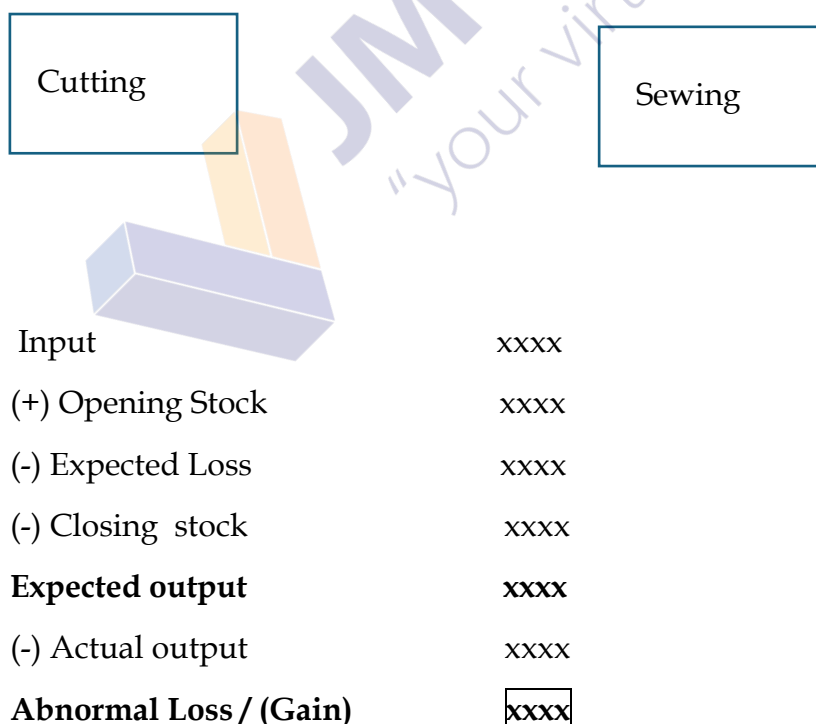
Statement of Cost

During the period incurred cost			
Value of Opening Stock			
Scrap Value of Normal loss			
Total Cost			
Per unit Cost			

Total cost

2.1.7 Average Cost Method (AVCO Method)

Under this method we do not assume that the units of opening work-in-progress will be completed first and thereafter the other units will be taken up, as assumed in the FIFO method. Instead, under this method, all the units are taken together, whether belonging to the opening WIP or to new lot started in the current period. Consequently, the cost of opening WIP is not separated from the cost of new units, but let them to be mixed together, as both types of units are manufactured together. The average cost is determined by dividing the total cost of all the units by the units manufactured together.



Statement of Equivalents Units

Opening Stock				
Output				
Normal Loss				
Abnormal Loss				
Closing Stock				
Equivalents Units				

Statement of Cost

During the period incurred cost			
Value of Opening Stock			
Scrap Value of Normal loss			
Total Cost			
Per unit Cost			

Total cost

Example:

Oxy Ltd. manufactures Product CO2 using several processes. 25,000 litres of materials were input into Process 3 from Process 2 costing Rs.20,350,000/- at the beginning of June 2023. In addition to this, direct labour worth Rs.8,547,000/- and variable production overheads of Rs.2,564,100/- were incurred to the Process 3 during the month of June 2023.

At the beginning of June 2023, there were 3,460 litres of opening work-in-progress in stock with the following levels of completion:

Input from **Process 2** : 100% completed, valued at Rs.2,800,120/-
 Direct Labour : 60% completed, valued at Rs.693,650/-
 Variable Production Overheads : 35% completed, valued at Rs.121,600/-

At the end of June 2023, there were 3,100 litres of closing work-in-progress, in stock which were 100%, 70% and 40% completed with regard to input materials from Process 2, direct labour and variable production overheads respectively. At the end of the month, 23,700 litres were transferred as Finished Goods.

The normal loss is 6% from the input material from Process 2 and the scrap can be sold at Rs.210/- per litre.

You are required to:

Prepare the Statement of Equivalent Units & Cost and Process 3 account

2.2 Service Costing

Service costing also known as operating costing is another form of continuous operation costing.

So far in this chapter, we have studied different types of costing systems that are being used by manufacturing organizations. Many of the cost accounting principles we have looked at so far can be applied to service organizations as well.

Under this, we will look at the costing methods used by service organizations, which we will call service costing.

Thus the services provided may be for external such as public transport, hospitality, health service, power generation, restaurants.....etc, or they may be internal such as canteen, maintenance, stores, procurement..... etc.

The major difficulty here is to select a realistic cost unit to which costs are ascertained. The concept of '**composite cost unit**' is deemed to be more relevant and logical.

2.2.1 Composite Cost Unit

As already explained in a previous chapter, if the cost unit is made up of two (or more) parts, then the 'composite cost unit' concept is applicable. i.e. the cost unit would be a combination of two (or more) sub units.

Example

Service Industry	Possible Composite Cost Unit
Passenger transport	Per passenger – Kilometre
Goods transport	Per tone – Kilometre
Hospitals	Patient – days
Electricity supply	Per Kilowatt hour (KWH)
Canteen	Per meal person
Cinema theatre	Per man show
Gas work	1,000 cubic feet produced
Lodge	Per person per day

The most important feature of service costing is that, almost all the costs are fixed in nature. For example, the costs of operating a cinema theatre are usually not influenced by the size of the audience.

Therefore the organization will have to decide carefully, what cost unit is most suitable and appropriate for its own purposes. Whatever the cost unit is adopted, the calculation of the cost per unit is done as follows.

$$\text{Cost per unit} = \frac{\text{Total cost for the period}}{\text{No. of service units supplied during the period}}$$

Exercise - 01

"Colombo Rider Transport" (CRT) is a small scale transport company which has engaged a fleet of buses in public transport. From the following information extracted from their records, calculate Kilometres run and total passenger Kilometres.

Number of buses	:	4
Days operated in a month	:	30
Number of trips by each bus	:	4 (per day)
Distance of a route	:	30 Kilometres long (one way)
Capacity of a bus	:	60 passengers
Normal passengers travelling	:	80% of the capacity

Answer

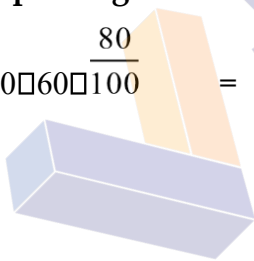
Total kilometres covered:

No. of buses x No. of days x No. of trips x Distance of trip

$$4 \times 30 \times 4 \times 60 = 28,800 \text{ (Kms)}$$

Total passenger kilometers covered:

$$28,800 \times \frac{80}{100} = 1,382,400 \text{ (Passenger Kms)}$$



3. Joint Products and By Products

3.1 Joint Products

Joint products are two or more products separated in a process, and each of them has a significant value compared to the other. In other words, Joint products are two or more products produced by the same process and subsequently separated in processing. Each of them has a sufficiently high saleable value.

Example:

Various outputs from oil refining; Petrol (P), Diesel (D) and Kerosene oil (K). Each of these products has a significant value compared with the other.

3.2 By Products

In contrast to the above, a by product is an incidental product generated from a process and has an insignificant value compared to the main products. The process was not set up to manufacture these products and they are being produced incidentally. Its value may be small when compared with that of the main products.

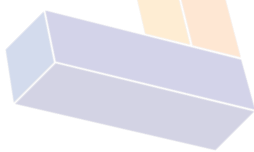
Example: (1)

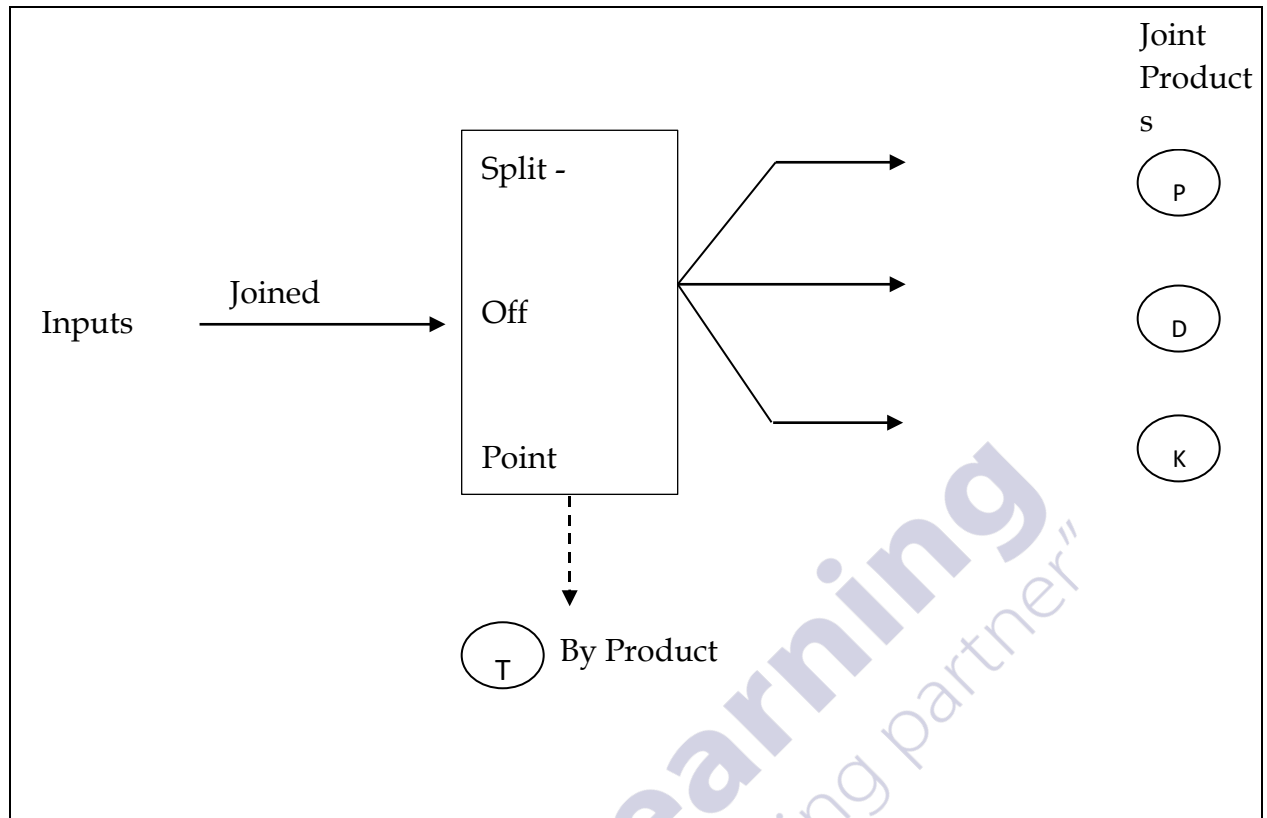
Grease oil, Tar etc being manufactured incidentally in oil refining.

Example: (2)

Sawdust being produced in a sawmill when timber is being processed. Sawdust has a small value or no value at all compared with the value of the main product – the timber.

The distinction between a joint product and a by product is important to understand because the accounting treatment differs.





As shown in the above diagram, the point at which joint products become separately identifiable is known as the "split-off point" or "separation point". The costs incurred up to this point are called "common costs" or "Joint costs". (or sometimes pre-separation costs).

3.3 How to Share-out Joint Costs?

The common costs/Joint costs should be shared out or apportioned among, these Joint products using a reasonable/rational basis, in order to find the apparent profit on each product and then to value the stocks. The most common bases of apportionment are;

- (a) Weight or volume of output
- (b) Final sales value
- (c) Sales value at the split-off point

Example:

PQR PLC produce three (03) joint products. A by product is being produced incidentally. All products could be sold at an interim point by finishing only a part or at the final stage once they are fully complete. Details are as follows.

Product	Output (Kgs)	Final selling price (Rs.)	Interim selling price (Rs.)	Further processing costs (Rs.) Per Litre
Joint Product A	25,000	40	30	6
Joint Product B	15,000	30	20	12
Joint Product C	10,000	20	15	3
By Product D	25,000	1	-	-

Joint costs incurred for the period are as follows.

	Rs.
Raw material	300,000
Direct labour	150,000
Variable overheads	50,000
Fixed production O/H	20,000
	<u>520,000</u>

The company is to incur Rs. 0.20 (20 cents) per Kg of by product to put them into the saleable condition. (ie. for the container)

You are required to calculate the cost per Kilogram of each product.

Answer:

First of all, you are supposed to calculate the net joint costs/net process costs. In order to calculate that, it is required to adjust the net sales value of by products to the joint costs.

	Rs.
Total joint costs	520,000
(-) <u>Net sales value of BP</u>	
Sales value of BP (25,000 x 1)	25,000
(-) Costs of containers (25,000 x 0.20)	<u>5,000</u> (20,000)
Net joint costs	<u>500,000</u>

Note:

Here, you must calculate the costs of joint products only. Costs of by product are not calculated, instead their net sales value is adjusted in arriving at the net joint costs, as a deduction. If a joint product is sold at the final stage in finished form, the cost of that product comprises two elements.

$$\text{Cost} = \text{Joint Costs} + \text{Further Processing Costs}$$

In order to calculate joint cost per unit, the net joint costs should be shared out among joint products. One of three (03) methods mentioned above is used for this sharing out.

Method 01: Based on weight or volume of output. (ie physical measurement)

With this method, joint costs are apportioned to the joint product according to their weight or volume of output.

In the above example;

Sharing out joint costs among products

J/P A	-	$500,000 \times \frac{25,000}{50,000}$	→	250,000
J/P B	-	$500,000 \times \frac{15,000}{50,000}$	→	150,000
J/P C	-	$500,000 \times \frac{10,000}{50,000}$	→	100,000

So, Joint cost per unit (Per Kg)

J/P A	-	$\times \frac{250,000}{25,000}$	→	10
J/P B	-	$\times \frac{150,000}{15,000}$	→	10
J/P C	-	$\times \frac{100,000}{10,000}$	→	10

Therefore, total costs per Kg of Joint products.

	A	B	C
Joint costs	10	10	10
Further P/costs	6	12	3
Total costs per Kg	16	22	13

Method 02: Based on final sales value

Under this method, joint costs are apportioned to the products according to their final sales value.

In the above example:

Final Sales values

J/P	A	(25,000 x 40)	=	1,000,000
J/P	B	(15,000 x 30)	=	450,000
J/P	C	(10,000 x 20)	=	200,000
				<u>1,650,000</u>

Sharing out joint costs among products

J/P	A	-	$500,000 \times \frac{1,000}{1,650}$	=	303,030
J/P	B	-	$500,000 \times \frac{450}{1,650}$	=	136,364
J/P	C	-	$500,000 \times \frac{200}{1,650}$	=	60,606

Therefore, joint costs per unit (Per Kg)

A	→	303,030/25,000	=	12.12
B	→	136,364/15,000	=	9.09
C	→	60,606/10,000	=	6.06

Accordingly, total costs per Kg

	A	B	C
Joint costs	12.12	9.09	6.06
Further P/costs	6	12	3
∴ Total costs per Kg	18.12	21.09	9.06

Method 03: Based on the sales value at the split – off point

In this method, joint costs are apportioned to the joint products based on their sales value at the separation point. This method is also called, "relative sales value apportionment method". There are two options discussed under this method.

Option 01: Based on sales value at the separation point

In the above example, sales value at S/Point

J/P	A	(25,000 x 30)	=	750,000
J/P	B	(15,000 x 20)	=	300,000
J/P	C	(10,000 x 15)	=	150,000
				<u>1,200,000</u>

Sharing out joint costs among products

A	-	$500,000 \times \frac{750}{1,200}$	→	312,500
B	-	$500,000 \times \frac{300}{1,200}$	→	125,000
C	-	$500,000 \times \frac{150}{1,200}$	→	62,500

So, joint costs per unit (Per Kg)

→	A	312,500/25,000	=	12.50
→	B	125,000/15,000	=	8.33
→	C	62,500/10,000	=	6.25

Accordingly, total costs per Kg. of J/P

	A	B	C
Joint costs	12.50	8.33	6.25
Further P/costs	6	12	3
∴ Total costs per Kg	18.50	20.33	9.25

Option 02: Based on the adjusted sales value at the separation point

Steps:

- (1) Deduct the further processing cost from the final selling price of each product and calculate the adjusted selling price.

Adjusted selling prices:

A	(40 - 6) =	34
B	(30 - 12) =	18
C	(20 - 3) =	17

- (2) Calculate the adjusted sales value, as follows.

Adjusted sales value = Ad/S/Price x S/Qty

A	(34 x 25,000)	=	850,000
B	(18 x 15,000)	=	270,000
C	(17 x 10,000)	=	170,000
			<u>1,290,000</u>

- (3) Share out the joint costs among products

A	-	$500,000 \times \frac{850}{1,290}$	=	329,457
B	-	$500,000 \times \frac{270}{1,290}$	=	104,651
C	-	$500,000 \times \frac{170}{1,290}$	=	65,892

Therefore, joint costs per unit (Per Kg)

$$A \quad - \quad 329,457 / 25,000 \quad = 13.18$$

$$B \quad - \quad 104,651 / 15,000 \quad = 6.98$$

$$C \quad - \quad 65,892 / 10,000 \quad = 6.59$$

Accordingly, total costs per Kg. of J/P

	A	B	C
Joint costs	13.18	6.98	6.59
Further P/costs	6	12	3
∴ Total costs per Kg	19.18	18.98	9.59



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