

وزارة التعليم العالي والبحث العلمي جامعة الفرات الاوسط التقنية المعهد التقني كربلاء قسم تقنيات المحاسبة

Educational Satchel

الحقيبة التعليميه

Cost Accounting محاسبة الكلفة Accounting Techniques Department قسم تقنيات المحاسبة Second Class الصف الثاني

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الاهداف التعليمية

Week 1: The cost accounting concept, objectives, applications, relationship with financial accounting and management accounting.

What is Cost Accounting ما المقصود بمحاسبة الكلفة

There are several definitions of cost accounting, we can know them : **Cost accounting** is the process of collecting and interpreting information to determine how an organization earns and uses funds. Or **cost accounting** is a process of assigning costs to cost objects that typically include a company's products, services, and any other activities that involve the company.

Or **cost accounting** is a process of collecting , analyzing, summarizing and evaluating various alternative courses of action. Its goal is to advise the management on the most appropriate course of action based on the cost efficiency and capability.

يمكن تعريف محاسبة التكاليف: محاسبة التكاليف هي عملية جمع المعلومات وتفسير ها لتحديد كيفية كسب المؤسسة للأموال واستخدامها. أو محاسبة التكاليف هي عملية تعيين التكاليف لعناصر التكلفة التي تتضمن عادةً منتجات الشركة وخدماتها وأي أنشطة أخرى تتضمن الشركة.

أو محاسبة التكاليف هي عملية جمع وتحليل وتلخيص وتقييم مختلف طرق العمل البديلة. هدفها هو تقديم المشورة للإدارة بشأن أنسب مسار (اكثر طريقة ملائمة للعمل) بناءً على كفاءة وقابلية التكلفة.

Objectives of cost accounting:

There are multiple objectives to using cost accounting

1- provide vastly more actionable information than the financial statements produced through financial accounting.

2- Determine where a company is spending its money, how much it earns, and where money is being lost.

3- Determine the cost of the product and thus determine the selling price.

4- Cost reduction and ascertaining the profit of each activity.

5- Provide detailed cost information that management needs to control current operations, make decisions and plan for the future.

اهداف محاسبة التكاليف: هنالك اهداف متعددة لاستخدام محاسبة التكاليف 1- توفير معلومات أكثر قابلية للتنفيذ من البيانات المالية المنتجة من خلال المحاسبة المالية. 2- تحديد أين تنفق الشركة أموالها ، وكم تكسب ، وأين تضيع الأموال. 3- تحديد تكلفة المنتج وبالتالي تحديد سعر البيع. 4- تخفيض التكلفة والتأكد من ربح كل نشاط. 5- توفير معلومات مفصلة عن التكلفة التي تحتاجها الإدارة من اجل الرقابة على العمليات الحالية واتخاذ

<u>the relationship between financial and management accounting</u> <u>to cost accounting</u>

1. Meaning-

a. Cost Accounting is the process of accounting for costs, from the very starting till the end of the reporting period. Reports are prepared at the end of the period in order to ascertain where the cost can be reduced or controlled.

b. Management Accounting refers to the application of the accounting principles and financial management to create, protect, preserve and increase the value of an organization for its stakeholders.

c. Financial Accounting is the art of recording, classifying, and summarizing the monetary transactions and events in a manner useful for the stakeholders to interpret the results thereof.

2. Objective-

a. Cost Accounting basically records the cost of producing a product or providing a service in which the business primarily deals.

b. Management Accounting is performed in order to help the management make decisions by providing the relevant information.c. Financial Accounting is undertaken to prepare Profit and Loss Account and Balance Sheet for presentation to shareholders and other external users.

3. Recording of Data —

a. In Cost Accounting, data is recorded using both, past and present figures.

b. Management Accounting focuses on the projection of data for the future.

c. Financial Accounting records Historical data.

4. Rules and Regulations -

a. Cost Accounting follows certain principles and procedures for recording costs.

b. Management Accounting does not follow any specific rules and regulations.

c. Financial Accounting follows Accounting Principles, Accounting Standards and Financial Accounting Standards.

the difference between cost, expense and loss

In accounting, though all three words that is cost, expense and loss represents outflow of funds from the company to outside world, however there is a difference in the manner in which the outflow of funds or cash happens.

<u>**Cost</u>** is a resources given up in exchange for some goods and services, includes both expired and deferred cost, Expired cost is the cost that has been already incurred, while deferred cost is one which has been incurred but its economic benefit is not received, such as prepaid expense or expenditure on research and development are some of the examples of deferred cost.</u> <u>An expense</u> includes only expired cost which is used up in earning revenues in a company's main operations. In other words it is a cost with a matching economic benefit during a particular period, such advertising and rent etc....

<u>While A loss</u> is defined as "an amount of money lost by a company." This can be in the form of revenue, assets, or even customers, Hence loss is outflow of funds without any matching economic benefit.

ما الفرق بين التكلفة والمصر وفات والخسارة؟ في المحاسبة ، على الرغم من أن الكلمات الثلاث التي تمثل التكلفة والمصر وفات والخسارة تمثل تدفق الأموال من الشركة إلى العالم الخارجي ، إلا أن هناك اختلافًا في الطريقة التي يحدث بها تدفق الأموال أو النقد.

التكلفة هي موارد تم التخلي عنها مقابل بعض السلع والخدمات ، وتشمل كلاً من التكلفة المنتهية الصلاحية (المستنفذة) والمؤجلة ، والتكلفة المستنفذة هي التكلفة التي تم تكبدها بالفعل ، في حين أن التكلفة المؤجلة هي التكلفة التي تم تكبدها ولكن لم يتم استلام منافعها الاقتصادية ، مثل المصر وفات المدفو عة مقدمًا أو نفقات على البحث والتطوير هي بعض أمثلة التكلفة المؤجلة.

تتضمن المصر وفات التكلفة المستنفذة فقط والتي يتم استخدامها في كسب الإير ادات في العمليات الرئيسية للشركة. بعبارة أخرى ، إنها تكلفة ذات فائدة اقتصادية (مماثلة) منسجمة معها خلال فترة معينة ، مثل الإعلان والإيجار وما إلى ذلك.

بينما يتم تعريف الخسارة على أنها "مبلغ من المال تضيعه الشركة". يمكن أن يكون هذا في شكل إير ادات أو أصول أو حتى عملاء ، وبالتالي فإن الخسارة هي تدفق الأموال دون أي فائدة اقتصادية (مماثلة) منسجمة معها. Week 2: Cost classification, natural, functional, in base of relationship with unit produced, in base of relationship with production volume.

Classification of Cost

Costs can be classified based on the following:-

1. Classification according to Nature (materials, Labor, overhead).

2. Classification according to Functions (Production cost, Selling and distribution cost, Administration costs).

3. Classification according to traceability of product. (direct and indirect).

4. Classification according to change in volume of activity. (Fixed, Variable and Simi variable).

1- Classification according to Nature: In this type, costs are divided into Direct materials, Direct labor and overheads.

<u>Direct materials</u> are the raw materials that directly enter into the production of the product unit and can be traced and allocated to the product unit such as cotton, leather, wood, aluminum, iron, etc.

<u>Direct labor cost</u> The direct labor cost is the cost of workers who can be easily identified with the unit of production. An example of the direct labor cost the wages of production line workers and the assembly workers on an assembly line and Selling agents commission

<u>Overheads:</u> It includes indirect materials, indirect wages, and other expenses which can be divided into, consumables, packing materials, and spare parts etc.. this is for the material. As for the indirect labor cost, it includes salaries, supervisors' wages, and maintenance workers' wages etc. As for other expenses, they include depreciation, rent, insurance, transportation, loading, water and electricity expenses etc.

1- التصنيف حسب الطبيعة: في هذا النوع تقسم التكاليف إلى مواد مباشرة وعمالة مباشرة ونفقات عامة. المواد المباشرة وينقات عامة. المواد المباشراد الخام التي تدخل مباشرة في إنتاج وحدة المنتج ويمكن تتبعها وتخصيصها لوحدة المنتج مثل القطن والجلود والخشب والألمنيوم والحديد ، إلخ.

تكلفة العمالة المباشرة تكلفة العمالة المباشرة هي تكلفة العمال الذين يمكن التعرف عليهم بسهولة من خلال وحدة الإنتاج. مثال على تكلفة العمالة المباشرة أجور عمال خط الإنتاج وعمال التجميع في خط التجميع وعمولة وكلاء البيع النفقات العامة: وتشمل المواد غير المباشرة والأجور غير المباشرة والمصروفات الأخرى التي يمكن تقسيمها إلى مواد استهلاكية ومواد تعبئة وقطع غيار وما إلى ذلك. و هذا خاص بالمواد. أما تكلفة العمالة غير المباشرة فتتضمن الرواتب وأجور المشرفين وأجور عمال الصيانة وغيرها. أما المصاريف

الأخرى فهي تشمل الإهلاك والإيجار والتأمين والنقل والتحميل ومصاريف المياه والكهرباء وغيرها. 2. Classification according to Functions: Classification by function involves classifying costs as production/manufacturing costs, administration costs or

marketing/selling and distribution costs.

In a 'traditional' costing system for a manufacturing organization, costs are classified as follows:

<u>Production or manufacturing costs</u>. These are costs associated with the factory.

<u>Administration costs</u>. These are costs associated with general office departments.

<u>Marketing</u>, or selling and distribution costs. These are costs associated with sales, marketing, and warehousing and transport departments.

يتضمن التصنيف حسب الوظيفة تصنيف التكاليف على أنها تكاليف الإنتاج / التصنيع أو تكاليف الإدارة أو تكاليف التسويق / البيع والتوزيع.

في نظام تقدير التكاليف "التقليدي" لمؤسسة التصنيع ، يتم تصنيف التكاليف على النحو التالي:

تكاليف الإنتاج أو التصنيع. هذه هي التكاليف المرتبطة بالمصنع. تكاليف الإدارة. هذه هي التكاليف المرتبطة بإدارات المكتب العام. تكاليف التسويق أو البيع والتوزيع. هذه هي التكاليف المرتبطة بالمبيعات والتسويق وأقسام التخزين والنقل.

3. Classification according to traceability of product: Direct costs and indirect costs,

A direct cost is a cost that can be traced in full to the product, service, or department that is being costed.

An indirect cost (or overhead) is a cost that is incurred in the course of making a product, providing a service or running a department, but which cannot be traced directly and in full to the product, service or department.

Materials, labor costs and other expenses can be classified as either direct costs or indirect costs

Direct material costs are the costs of materials that are known to have been used in making and selling a product (or even providing a service). Direct labor costs are the specific costs of the workforce used to make a product or provide a service. Direct labor costs are established by measuring the time taken for a job, or the time taken in 'direct production work' Other direct expenses are those expenses that have been incurred in full as a direct consequence of making a product, or providing a service, or running a department.

Examples of indirect costs include supervisors' wages, cleaning materials and buildings insurance

التكاليف المباشرة و التكاليف غير المباشرة التكلفة المباشرة هي التكلفة التي يمكن تتبعها بالكامل للمنتج أو الخدمة أو القسم الذي يتم حساب تكلفته. التكلفة غير المباشرة (أو النفقات العامة) هي التكلفة التي يتم تكبدها في سياق صنع منتج أو تقديم خدمة أو تشغيل قسم ، ولكن لا يمكن تتبعها بشكل مباشر وكامل للمنتج أو الخدمة أو القسم. يمكن تصنيف المواد وتكاليف العمالة والمصروفات الأخرى إما على أنها تكاليف مباشرة أو تكاليف غير مباشرة تكاليف المواد المباشرة هي تكاليف العمالة والمصروفات الأخرى إما على أنها تكاليف مباشرة أو تكاليف تكاليف المواد المباشرة هي تكاليف العمالة والمصروفات الأخرى إما على أنها تكاليف مباشرة أو تكاليف تكاليف المواد المباشرة هي تكاليف المواد التي من المعروف أنها استخدمت في صنع وبيع منتج (أو تكاليف العمالة المباشرة هي التكاليف المواد التي من المعروف أنها استخدمت في صنع وبيع منتج (أو تكاليف العمالة المباشرة هي التكاليف المودة للقوى العاملة المستخدمة لصنع منتج أو الوقت تكاليف العمالة المباشرة مي التكاليف المحددة للقوى العاملة المستخدمة لصنع منتج أو تقديم خدمة. المستغرق في "عمل الإنتاج المباشر" المستغرق في "عمل الإنتاج المباشرة الم ويقاس الوقت المستخدمة المنع منتج أو تقديم منتج أو تقديم خدمة من تكايف المحالة المباشرة عن طريق قياس الوقت المستخدمة لصنع منتج أو تقديم منتج المسروفات المباشرة الأخرى هي تلك المصر وفات التي تم تكبدها بالكامل كنتيجة مباشرة لصنع منتج أو تقديم خدمة أو إدارة قسم.

4. Classification according to change in volume of activity: Classification by behaviour, this refers to the classification of cost according to how the costs react/vary with output levels. It means, based on the activity level or the outputs produced, costs can be classified as fixed or variable.
Fixed cost - It mainly relates to time or period. It remains unchanged irrespective of volume of production like factory rent, insurance, etc
Variable cost - Variable cost directly associates with unit. It increases or decreases according to the volume of production. Direct material and direct labor are the most common examples of variable cost. It means the variable cost per unit remains constant irrespective of production of units
Semi-variable cost - Many items of expenditure are part-fixed and part-variable and hence are termed semi-fixed or semi-variable costs.

التصنيف حسب السلوك يشير هذا إلى تصنيف التكلفة وفقًا لكيفية تفاعل / اختلاف التكاليف مع مستويات الإنتاج. وهذا يعني ، بناءً على مستوى النشاط أو المخرجات المنتجة ، يمكن تصنيف التكاليف على أنها ثابتة أو متغيرة. التكلفة الثابتة - تتعلق بشكل أساسي بالوقت أو الفترة. يبقى دون تغيير بغض النظر عن حجم الإنتاج مثل إيجار المصنع والتأمين وما إلى ذلك

التكلفة المتغيرة - التكلفة المتغيرة مرتبطة مباشرة بالوحدة. يزيد أو ينقص حسب حجم الإنتاج. المواد المباشرة والعمالة المباشرة هي أكثر الأمثلة شيوعًا للتكلفة المتغيرة. هذا يعني أن التكلفة المتغيرة لكل وحدة تظل ثابتة بغض النظر عن إنتاج الوحدات التكلفة شبه المتغيرة - العديد من بنود الإنفاق هي جزء ثابت وجزء متغير ، وبالتالي يطلق عليها تكاليف شبه ثابتة أو شبه متغيرة.

Questions and Exercises

Questions

1- deified cost accounting?

- 2- What is the relationship between financial and management accounting
- to cost accounting?
- 3- What is the difference between cost, expense and loss?
- 4- What are the cost elements? explain them in detail
- 5-What are the main classifications of costs?

Exercises

Exercise 1:- Classification of costs by nature and functions.

Wages of factory security guards	350 000
Paper for the office computers	21 000
Commission of salesmen	800 000
Deprecation of machines	15 000
Interest on bank overdraft	10 250
Chief accountants salary	250 000
Advertising expenses	50 000
Leather for bags	16 000 000
Wages of workers	26 000 000
Shipping and transportation of materials	200 000
Electricity bill for heating and lighting the factory	30 000
Lubricant to clean the machines in the factory	15 000

Exercise 2:- Classification of costs by nature , functions, degree of traceability of the product and by change in activity.

Raw materials 15000 000,	Packing material 50 000,
Manufacturing wages 20 000 000,	Advertising expenses 180 000,
Deprecation of furniture 12 000,	Indirect wages 1250 000,
Commission of salesmen 550 000.	Oil 17500,
Wages of production services 4 750 000,	Stationary 50 000,
Wages of employs production 10000,	Supervisory wages 1 650 000,
Administrative expenses 190 000,	Rent of building 600 000,
Salary of manager plant 500 000,	Indirect materials 1 3250 000,

Exercise 3 :- Classification of costs by nature , functions, degree of traceability of the product and by change in activity.

Main material used in production	\$100 000 000
Other materials used in production	9 000 000
Tools write and print for management	32 000
Direct wages related in production	1 500 000
Wages supervisor on production	4 100 000
Commission of salesmen	3 000 000
Salaries of management staff	4 000 000
Depreciation of building	10 000
Insurance on factory building	30 000
Rent equipment and machines in factory	160 000
Expense of water and electricity in factory	12 500
Rent of sell exhibition	250 000

Exercise 4 :- Classification of costs by nature , functions, degree of traceability of the product and by change in activity.

Raw material	81 000 000
Workmen wages of production	219 000 000
Salaries of store keepers	350 000
power related in production	500 000
Transportation and loading of goods	49 000
Bonus of office staff	600 000
Warehousing expenses of goods	200 000
Insurance on Manufacturing employees	100 000
Equipment and machines deprecation	10 000
Maintenance and repair wages	120 000
Workmen wages of assembling parts	20 000 000

Exercise 5 :- Classification of costs by functions and by change in activity.

Direct wages	50 000 000
Spare parts	70 000
Direct material	35 000 000
Rent of plant	1000 000
Management expenses	43 000
Advertising expenses	1 200 000
Salaries of staff	8 000 000
Salary of general manager	1 700 000
Lighting expenses of office	15 000

Exercise 6:- Classification of costs by nature and degree of traceability of the product.

Raw materials	45 000 000
Packing material	90 000
Manufacturing wages	220 000 000
Deprecation of furniture	21 000
Commission of salesmen	650 000
Oil and Lubricant	35 000
Wages of Maintenance and repai	r 750 000
Wages of employs marketing	1000 000
Supervisory Bonus	680 000
Administrative expenses	300 000

Week 3: Cost centers, cost units, Explain how to link cost units to cost centers

Cost Centers

Cost center is a place to which costs can be traced or segregated. The cost center can be a department, a division, a responsible person, a production line or a project. Managers of cost centers are responsible for keeping their costs in line or below budget.

مركز التكلفة هو المكان الذي يمكن تتبع التكاليف أو فصلها. يمكن أن يكون مركز التكلفة قسمًا أو شعبة او شخصًا مسؤولاً او خط انتاجي او مشروع. وتتمثل مسؤولية مدراء مراكز الكلفة في بقاء الكلف المناطة بهم في نفس مستوى او ادنى من الكلف المخططة.

ويمكن ان نقسم مراكز الكلف الى -:Cost centers can be divided into

- مراكز الانتاج .production centers
- مراكز خدمات الانتاج .production services centers •
- مراكز خدمات التسويق.marketing services centers
- administration services centers. مراكز الخدمات الادارية
- finance process centers. مراكز عمليات التمويل

Examples of cost centers: the IT department, quality control department, the accounting department.

أمثلة على مراكز التكلفة: قسم تكنولوجيا المعلومات ، وقسم مراقبة الجودة ، وقسم المحاسبة

Cost units:- A cost unit is a unit of a product or a service to which costs can be traced. For example, for a manufacturer of laptop computers, a cost unit would be a laptop. For a bus company, a cost unit could be a bus journey. The unit of cost is determined for:

•Work out the cost of providing product or service

•Work out the resources needed, material, labor and other expenses to make or supply the unit.

وحدات الكلفة: - هي وحدة لمنتج أو خدمة يمكن تتبعها. على سبيل المثال ، بالنسبة لشركة تصنيع أجهزة الكمبيوتر المحمولة ، ستكون وحدة التكلفة هي جهاز الكمبيوتر المحمول وبالنسبة لشركة الحافلات يمكن أن تكون وحدة التكلفة رحلة الحافلة الواحدة. يتم تحديد وحدة التكلفة من اجل: • العمل على تحديد تكلفة تقديم المنتج أو الخدمة • العمل على الموارد اللازمة من مواد وتكلفة العمل والمصروفات الأخرى لإنشاء أو تكوين الوحدة. Week 4: Cost elements , materials, materials control, materials purchase document circle, pricing material, computer materials cost.

Elements of cost

The elements of cost are: 1. Materials 2. Labor, 3. Expenses and Overheads

1. Materials: "The material cost is the cost of commodities supplied to an undertaking" **Materials cost is of two types:**

(a) Direct materials cost, and

(b) Indirect materials cost.

(a) Direct Materials Cost:

Direct material cost is "The cost of materials entering into and becoming constituent elements of a product or saleable service". Thus, materials which can be identified with units of output or service are known as direct materials.

Cotton used in production of cloth, leather used in the case of production of leather goods and lime in the production of chalk, etc., are the examples of direct materials. Any materials purchased and used for a specific job are also direct materials.

(b) Indirect Materials Cost:

"Materials used for the product other than the direct materials are called indirect materials. In other words, materials cost which cannot be identified with a specific product, job, process is known as indirect material cost.

Small tools, stationery used in works, office stationery, advertising posters, and materials used in maintenance of plant and machinery are a few examples of indirect materials.

عناصر التكلفة هي: 1. المواد 2. العمالة ، 3. المصاريف و النفقات العامة 1. المواد: "تكلفة المواد هي تكلفة السلع الموردة إلى تعهد" تكلفة المواد من نوعين: (أ) تكلفة المواد المباشرة ، و (أ) تكلفة المواد المباشرة . (أ) تكلفة المواد المباشرة . (أ) تكلفة المواد المباشرة هي "تكلفة المواد التي تدخل وتصبح عناصر مكونة لمنتج أو خدمة قابلة للبيع". وبالتالي ، فإن المواد التي يمكن تحديدها بوحدات الإنتاج أو الخدمة تُعرف بالمواد المباشرة. القطن المستخدم في إنتاج القماش ، والجلود المستخدمة في حالة إنتاج المصنو عات الجادية والجير في إنتاج الطباشير ، وما إلى ذلك ، هي أمثلة على المواد المباشرة. معينة هي أيضاً مواد مباشرة. (ب) تكلفة المواد غير المباشرة. "المواد المستخدمة للمنتج بخلاف المواد المباشرة تسمى المواد غير المباشرة. بمعنى آخر ، تُعرف تكلفة المواد التي لا يمكن تحديدها بمنتج معين أو وظيفة أو عملية باسم تكلفة المواد غير المباشرة. المواشرة. الأدوات الصغيرة ، والقرطاسية المستخدمة في الأعمال ، والقرطاسية المكتبية ، والملصقات الإعلانية ، والمواد المستخدمة في أمثلة قليلة على المواد غير المباشرة.

2. Labor:

Labor is the remuneration paid for physical or mental effort expended in production and distribution.

"The labor cost is the cost of remuneration (wages, salaries, commissions, bonus, etc.) of the employees of an undertaking" Labor cost is also divided into direct and indirect portions:

(a) Direct Labor Cost:

It is also called 'Direct-wages'. Direct labor cost is the cost of labor directly engaged in production operations. E.g., workmen engaged in assembling parts, carpenters engaged in furniture making, etc.

(b) Indirect Labor Cost:

indirect labor cost is the remuneration paid for labor engaged to help the production operations, e.g., inspectors, watchmen, sweepers, store keepers, etc. The remuneration paid to these persons cannot be traced to a job, process or production order. The labour costs of idle time, overtime, holidays, etc., are also taken as indirect costs. Similarly, clerical and managerial staff, salesmen, distribution employees are also included in the orbit of 'indirect labour'.

· 1 . 2 العمل هو الأجر الذي يُدفع مقابل الجهد البدني أو العقلي المنفق في الإنتاج والتوزيع. "تكلفة العمالة هي تكلفة الأجر (الأجور ، والمرتبات، والعمولات، والمكافآت، وما إلى ذلك) لموظفى الشركة" تنقسم تكلفة العمالة أيضًا إلى أجزاء مباشرة وغير مباشرة: (أ) تكلفة العمالة المباشرة: وُيسمى أيضًا "الأجور المباشرة". تكلفة العمالة المباشرة هي تكلفة العمالة المشاركة مباشرة في عمليات الإنتاج. على سبيل المثال ، العمال المنخر طون في تجميع الأجزاء ، والنجارون العاملون في صناعة الأثاث ، وما إلى ذلك. (ب) تكلفة العمالة غير المباشرة: تكلفة العمالة غير المباشرة هي الأجر الذي يتم دفعه مقابل العمالة المستخدمة لمساعدة عمليات الإنتاج، على سبيل المثال، المفتشون، والحراس، وعمال النظافة، وحافظو المتاجر، وما إلى ذلك. لا يمكن إرجاع المكافأة المدفوعة لهوَّلاء الأشّخاص إلى وظيفة أو عملية أو أمر إنتاج. تكاليف العمالة لوقت الخمول ، والعمل الإضافي ، والإجازات ، وما إلى ذلك ، تؤخذ أيضًا على أنَّها تكاليف غير مباشرة. وبالمثل، يتم أيضًا تضمين الموظفين الكتابيين والإداريين والباعة وموظفى التوزيع في مدار "العمل غبر المياشر ".

3.Expenses:

Expenditure other than material and labor is the third element of cost. It is defined as- "The cost of service provided to an undertaking and the notional cost of the use of owned assets".

Expenses are of two types:

(a) Direct expenses, and

(b) Indirect expenses.

(a) Direct Expenses:

These are the expenses which can be directly identified with a unit of output, job, process or operation. They are specifically incurred for a job, or unit or process and in no way they are connected with other jobs or processes. The direct expenses are also known as chargeable expenses.

examples are Cost of special patterns, designs or plans for a particular job or work order, etc.

(b) Indirect Expenses:

Indirect expenses are expenses other than indirect material and indirect labor, which cannot be directly identified with units of output, job, process or operation. These expenses are incurred commonly for jobs and processes. E.g., rent, power, lighting, depreciation, bank charges, advertising, etc.

3- المصر وفات: النفقات بخلاف المواد والعمالة هي العنصر الثالث للتكلفة. يتم تعريفه ك- "تكلفة الخدمة المقدّمة إلى تعهد والتكلفة الافتر اضية لاستخدام الأصول المملوكة". المصر وفات نوعان: (أ) المصاريف المباشرة ، و. (ب) المصاريف غير المباشرة. (أ) المصاريف المباشرة: هُذه هي النفقات التي يمكن تحديدها بشكل مباشر مع وحدة الإنتاج أو الوظيفة أو العملية أو العملية. يتم تكبدها بشكل خاص لوظيفة أو وحدة أو عملية ولا ترتبط بأي شكل من الأشكال بوظائف أو عمليات أخرى. تُعرف المصاريف المباشرة أيضًا بالمصروفات المحملة. الأمثلة هي تكلفة الأنماط أو التصاميم أو الخطط الخاصة لوظيفة معينة أو أمر عمل ، إلخ. (ب) المصاريف غير المباشرة: المصروفات غير المباشرة هي مصروفات أخرى غير المواد والعمالة غير المباشرة ، والتي لا يمكن تحديدها بشكل مباشر بوحدات الإنتاج أو الوظيفة أو العملية أو التشغيل. يتم تكبد هذه النفقات عادة للوظائف والعمليات. على سبيل المثال ، الإيجار ، الطاقة ، الإضاءة ، الاستهلاك ، الرسوم المصرفية ، الإعلان، إلخ.

material control مراقبة المواد

material: is the cost of incoming goods for the industrial organization and it forms an essential part of the final product and includes the materials used in manufacturing, assembly and recycling, An important part of the process is production, so the process does not take place if the materials are not available in the quantity, quality and appropriate time. It can be divided into three groups when they are received by the organization.

- Raw materials such as cotton in the manufacture of clothing.
- Semi-finished materials, for example, unpainted furniture.
- Finished materials :spare parts.

المادة: هي تكلفة السلع الواردة للمؤسسة الصناعية وتشكل جزءًا أساسيًا من المنتج النهائي وتشمل المواد المستخدمة في التصنيع والتجميع وإعادة التدوير ، وجزء مهم من العملية و هو الإنتاج ، لذلك لا تتم العملي الانتاجية إذا كانت المواد غير متوفرة بالكمية والجودة والوقت المناسب ويمكن تقسيم المواد التي تستلمها المنظمة الى ثلاث مجمو عات.

المواد الخام مثل القطن في صناعة الملابس.

المواد شبه المصنعة ، مثل الأثاث غير المطلي.

المواد المكتملة: قطع غيار

نظام مراقبة المواد MATERIAL CONTROL SYSTEM

Material form an important part of the cost of product and therefore, proper control over materials is necessary, an efficient system of materials control will lead to a significant reduction in production cost.

تشكل المواد جزءًا مهمًا من تكلفة المنتج ، وبالتالي ، فإن الرقَّابة المناسبة على المواد ضرورية ، وسيؤدى النظام الفعال للرقابة على المواد إلى انخفاض كبير في تكلفة الإنتاج.

- شراء المواد Purchasing of materials
- Receiving of materials استلام المواد
- فحص المواد Inspection of materials
- تخزين المواد Storage of materials
- إصدار المواد Issuing of materials
- مسك سجل المخازن Maintenance of stores record
- تدقيق المخزون Stock audit

اهداف نظام مراقبة المواد MATERIAL CONTROL SYSTEM

Materials control basically aims at efficient purchasing of materials, their efficient storing and efficient use or consumption. Materials control consists of controls at two levels: Quantity controls and Financial controls.

يهدف التحكم في المواد بشكل أساسي إلى الشراء الفعال للمواد وتُخزينها بكفاءة واستخدامها أو استهلاكها بكفاءة. وتتكون مراقبة المواد من الرقابة على مستويين: (1) رقابة كمية و (2) المالية.

عملية الشراء <u>Purchase process</u>

Materials may be purchased based on the size of the concern, nature of materials to be used, nature of operations and management polices etc. A large companies have a separate purchase department while all functions are managed by the owner himself on a small companies.

يمكن شراء المواد بناءً على اهمية وطبيعة المواد التي سيتم استخدامها وطبيعة العمليات وسياسات الإدارة وما إلى ذلك. وتمتلك الشركات الكبيرة قسم مشتريات منفصل بينما تتم إدارة جميع الوظائف من قبل المالك نفسه في الشركات الصغيرة.

الدورة المستندية لعملية الشراء Documentary cycle of the purchase process

- Bill of Materials. قائمة بالمواد
- Purchase Requisition. طلب الشراء
- Selection of Suppliers اختيار الموردين.
- Purchase Orders. أوامر الشراء
- Goods Received Note. إشعار استلام البضائع
- Inspection of Materials.

Week 5: Material inventory procedures, storage document, storage records, material issued pricing methods, FIFO,LIFO

اصدار (صرف) المواد Issuing of materials

It is the quality of every good system of materials control that no materials can be issued from store except on properly prepared and approved materials requisitions.

The materials requisition is a written order to the storekeeper to deliver materials or supplies to the place and the department designated or to given the materials to the person presenting a properly executed requisition.

يتميز نظام مراقبة المواد الفعال بأنه لا يمكن إصدار أي مواد من المخزن بدون طلبات المواد المعدة والمعتمدة بشكل صحيح . طلب المواد هو أمر مكتوب لأمين المخزن لتسليم المواد أو الإمدادات إلى المكان والقسم المعين أو إعطاء المواد إلى الشخص الذي يقدم طلبًا تم تنفيذه بشكل صحيح.

تسعير المواد الصادرة Pricing of materials Issues

After determining the quantity of material issued to each job for production purposes during a particular period, it is necessary to calculate its value for cost accounting purposes, since almost every material is purchased at different times at different rates and is mixed together, it is very difficult to ascertain the actual value of the material issued for production purposes, Therefore, we must find ways to price these materials.

بعد تحديد كمية المواد الصادرة لكل وظيفة لأغراض الإنتاج خلال فترة معينة ، من الضروري حساب قيمتها لأغراض محاسبة التكاليف ، نظرًا لأنه يتم شراء كل مادة تقريبًا في أوقات مختلفة بمعدلات مختلفة ويتم خلطها معًا ، فمن الصعب جدا التأكد من القيمة الفعلية للمواد الصادرة لأغراض الإنتاج, لذلك ، يجب أن نجد طرقًا لتسعير هذه المواد.

طرق تسعير المواد المصدرة Methods Of Pricing Materials Issues

There are various methods in use of pricing issues of materials from store. The selection of suitable method is significant from the viewpoint of cost absorbed and consequently on profit. Therefore, the method should be selected in the light of probable effects on profit over a period of years.

Material is purchased specially for a job. The material issued is charged to the job at its landed cost. Landed cost include the invoice price, freight, cartage and insurance charges on materials. Issue of such items cannot be linked with a particular 'lot' and therefore, exact landed cost of the particular unit issued

cannot be identified. If the purchase price for each lot is different from that of the others, the question arises as to which purchase should be taken into consideration for pricing material issues.

هناك طرق مختلفة في استخدام قضايا تسعير المواد من المخزن, و يعد اختيار الطريقة المناسبة أمرًا مهمًا من وجهة نظر التكلفة الاجمالية وبالتالي على الربح. لذلك ، يجب اختيار الطريقة في ضوء التأثيرات المحتملة على الربح على مدى فترة من السنوات. يتم شراء المواد خصيصًا للعمل. يتم تحميل المواد الصادرة على الامر بتكلفة وصولها. وتشمل تكلفة سعر الفاتورة ورسوم الشحن والنقل ورسوم التأمين على المواد. لا يمكن ربط إصدار مثل هذه العناصر ب "دفعة" معينة ، وبالتالي ، لا يمكن تحديد التكلفة الدقيقة لوحدة معينة صادرة. إذا كان سعر الشراء لكن دفعة مختلفًا عن الآخر ، فإن السؤال الذي يطرح نفسه حول الشراء الذي يجب أن يؤخذ في الاعتبار بالنسبة لتسعير المواد الصادرة.

Some important and mostly used methods of pricing are as follows.

1. First In First Out(FIFO) Method أولاً يصرف أولاً

طريقة ما يرد آخرا يصرف أولاً... Method (LIFO) Method وريقة ما يرد آخرا يصرف أولاً...

3. Weight Average Method(WAM).... طريقة المعدل الموزون....

1 -First in First out Method (FIFO) طريقة ما يرد أولاً يصرف أولاً

Under this method materials are used in the order in which they are received. In other words, materials received first are issued first. This process is repeated throughout.

The price of the earliest consignment is taken first and when that is exhausted, the price of the next consignment is adopted and so on. This method is most suitable for use where the material is slow moving and has comparatively high unit cost This method is also useful in times of falling prices because the issue price of material to the job will be high while the replacement cost of material will be below.

بموجب هذه الطريقة ، يتم استخدام المواد بالترتيب الذي يتم استلامها به. بمعنى آخر ، يتم إصدار المواد المستلمة أولاً. تتكرر هذه العملية طوال الوقت.

يتم أخذ سعر الشحنة الأولى أولاً وعندما يتم استنفاد ذلك ، يتم اعتماد سعر الشحنة التالية وما إلى ذلك. هذه الطريقة هي الأنسب للاستخدام عندما تكون المادة بطيئة الحركة ولها تكلفة وحدة عالية نسبيًا. هذه الطريقة مفيدة أيضًا في أوقات انخفاض الأسعار لأن سعر إصدار المواد إلى الطلبية سيكون مرتفعًا بينما تكون تكلفة استبدال المواد أقل.

Example:- Show the Stores Ledger entries for the month of Jan, 2018 as they would appear when using FIFO method:

-Jan. 1 was the balance of materials 500 units @ 3 .

-Jan.2 Purchased 300 units @ \$.3 per unit and paid the transportation expense \$ 300

-Jan.3 Purchased 600 units @\$4 per unit and paid commission and taxes \$ 600

-Jan.6 Issued 600 units.

-Jan. 10 Purchased 700 units @ \$4 per unit and paid the transportation expense \$ 350.

-Jan. 15 Issued 850 units.

-Jan.20 Purchased 300 units @ \$ 5 per unit and paid commission and transportation \$ 300.

-Jan.23 Issued 100 units.

-Jan. 25 return 50 units the materials issued Jan. 15.

Required ; 1- prepare item card

2- journalize the transactions .

Solution example -

1-Bin card (FIFO)									
Date	Received (purchasing)			Issued			Balance		
	Quantity	price	amount	Quantity	price	amount	Quantity	Price	amount
Jan. 1							500	3	1500
Jan. 2	300	4	1200				800	500 * 3	2700
								300 * 4	
Jan. 3	600	5	3000				1400	500 * 3	5700
								300 * 4	
								600 * 5	
Jan. 6				600	500*3	1900	800	200 * 4	3800
					100*4			600 * 5	
Jan.10	700	4.5	3150				1500	200 * 4	6950
								600 * 5	
								700*4.5	
Jan.15				850	200*4	4025	650	4.5	2925
					600*5				
					50*4.5				
Jan.20	300	6	1800				950	650*4.5	4725
								300*6	
Jan.23				100	4.5	450	850	550*4.5	4275
								300*6	
Jan.25				(50)	50*4.5	(225)	900	600*4.5	4500

20

2- journal E Journal E Jan.2 Raw Journal E Jan.3 Raw Move Ra Jan.6 Work-in-J	1900 lize the tr Entry for a v material Accou Entry for a v material A w material A w Mater	ransact an Inve ls cont ints pa an Inve ls cont account ials to	9150 tions entory Patrol yable entory Patrol trol ts payab	1500 urchas urchas	e(Pur 1200 ee(Pur 3000	rchase) rchase)	6150 Entry) 1200 Entry)	900	4500
2- journal E Jan.2 Raw Journal E Jan.3 Raw Move Ra Jan.6 Vork-in-J	lize the tr Entry for a v material Accou Entry for a v material A w Mater process	ransact an Inve ls cont ints pa an Inve ls cont account ials to	tions entory P trol yable entory P trol trol	urchas urchas Je	e(Pur 1200 e(Pur 3000	chase) chase)	Entry) 1200 Entry)		
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Journal E -Jan.3 Raw Move Ra Jan.6 Work-in-J	Entry for a v material A w Mater process	an Inve ls cont Account ials to	entory Patrol trol ats payab	urchas ole	e(Pur 3000	chase)	Entry)		
Rav Move Ra Jan.6 Work-in-J	v material A w Mater process	ls con Account ials to	trol Its payab	ole	3000)			
Move Ra -Jan.6 Work-in-j - R	A w Mater process	accour	its payab	ole					
Move Ra -Jan.6 Work-in-J	w Mater	ials to					30	00	
Work-ın-j - R	process		Work i	n Proc	cess(l	[ssue	Entry)		
I.	Raw mate	contro erials	control	1900	J	1900)		
Journal E -Jan.10	Entry for a	an Inve	entory P	urchas	e(Pur	chase	Entry)		
Rav	v materia	ls con	trol		3150)			
	А	ccount	s payab	le			31:	50	
Move Ra -Jan.15	w Mater	ials to	Work i	n Proc	cess(l	[ssue	Entry)		
Work-in-	process	contro) 1	4023	5				
- R	Raw mate	erials	control			4025	,		
Journal E -Jan.20	Entry for a	an Inve	entory P	urchas	e(Pur	chase	Entry)		
Rav	v material	ls con	trol		1800)			
	A	Accoun	its payab	ole			180	0	
Move Ra -Jan 23	w Mater	ials to	Work i	n Proc	cess(l	[ssue]	Entry)		
Work-in-	process	contro	01	450					
- R	Raw mate	erials	control			450)		

Raw materials control225Work-in- process control225

Stock Equation

first Balance + (received – return to supplier)=(Issued- return to store) + end balance رصيد اول المدة +(الوارد – المردودات الى المجهزين) =(الصادر – المردودات الى المخزن) +رصيد اخر المدة 1500 + 9150 = 4500 + 6150 10650 = 10650

طريقة الوارد اخراً يصرف اولا (LIFO: Last in First Out Method: (LIFO)

This method is exactly the opposite of FIFO method. Under this materials received last are issued first. The price of the material to be issued would the cost price of the last lot of materials purchased.

This method is useful during to period of rising prices because materials will be issued from the latest consignment a price which is closely related to the current price levels. Under this method product' cost is calculated on a basis which approximates to replacement cost.

هذه الطريقة هي عكس طريقة FIFO تمامًا. بموجب هذه الطريقة فان المواد التي تم استلامها اخرا يتم إصدار ها أولاً. وسيكون سعر المادة التي سيتم إصدار ها هو سعر تكلفة آخر دفعة من المواد المشترات. هذه الطريقة مفيدة خلال فترة ارتفاع الأسعار لأن المواد ستصدر من آخر شحنة بسعر يرتبط ارتباطًا وثيقًا بمستويات السعر الحالية. بموجب هذه الطريقة يتم حساب تكلفة المنتج على أساس يقارب تكلفة الاستبدال.

Example: The followings transactions took place in respect of material in during the month of January, 2018. Under Stores Ledger using LIFO method. Jan. 1 was balance the materials 500 units @ \$ 6.

Jan.4 Purchased 550 units @ .5 per unit and paid the transportation expense 275.

Jan.5 Purchased 600 units @ \$.6 per unit and paid the taxes \$ 300.

Jan.6 Issued 500 units.

Jan.10 Purchased700 units @ \$7 per unit and paid the commission ,transportation expense \$350 .

Jan. 15 Issued 800 units.

Jan.20 Purchased 300 units @ \$ 5 per unit.

Jan. 22 return 250 units the purchased materials in Jan. 4.

Jan.23 Issued 700 units.

Jan.25The inventory stocks last period 300 units and found the cause of deference is 100 unit damage alone .

Required ; 1- prepare item card

2- journalize the transactions . Solution example LIFO:-

date	Received (purchasing)		Issued			Balance			
	Quantity	price	amount	Quantity	Price	amount	Quantity	Price	amount
Jan. 1							500	6	3000
Jan. 4	550	5.5	3025				1050	500*6	6025
								550*5.5	
Jan. 5	600	6.5	3900				1650	500*6	9925
								550*5.5	
								600*6.5	
Jan. 6				500	6.5	3250	1150	500*6	6675
								550*5.5	
								100*6.5	
Jan.10	700	7.5	5250				1850	500*6	11925
								550*5.5	
								100*6.5	
								700*7.5	
Jan.15				800	100*6.5	5900	1050	500*6	6025
					700*7.5			550*5.5	
Jan.20	300	5	1500				1350	500*6	7525
								550*5.5	
								300*5	
Jan.22	(250)	5.5	(1375)				1100	500*6	6150
								300*5.5	
								300*5	
Jan.23				700	300*5	3750	400	400*6	2400
					300*5.5				
					100*6				
Jan.25	Unit dama	nge		100	6	600	300		1800
total	1900		12300	2100		13500	300		1800

1-Bin card

2- journalize the transactions

Journal Entry for an Inventory Purchase(Purchase Entry) -Jan.4

Raw materials control	3025	
Accounts payable		3025

Journal Entry for an Inventory Purchase(Purchase Entry) -Jan.5

Raw materials control3900Accounts payable3900

Move Raw Materials to Work in Process(Issue Entry)
Work-in-process control3250-Raw materials control3250
Journal Entry for an Inventory Purchase(Purchase Entry)
Raw materials control5250Accounts payable5250
Move Raw Materials to Work in Process(Issue Entry)
- Raw materials control 5900 - Raw materials control 5900
Journal Entry for an Inventory Purchase(Purchase Entry) -Jan.20
Raw materials control1500Accounts payable1500
Move Raw Materials to Work in Process(Issue Entry) -Jan 22
Accounts payable 1375 - Raw materials control 1375
Move Raw Materials to Work in Process(Issue Entry)
Work-in-process control 3750 - Raw materials control 3750
Journal entry to write off damaged inventory -Jan.25
Loss on inventory write-off600Raw materials control600
$\frac{\text{Stock Equation}}{\text{first Balance} + (\text{received} - \text{return to supplier}) = (\text{Issued- return to store}) + \text{end balance} \\ 3000 + 12300 = 13500 + 1800 \\ 15300 = 15300$

Week 6: Average method, ending inventory, inventory restriction, accounting treatment for normal and abnormal spoilage

طريقة المعدل الموزون Weight Average Method

Under this method, materials issued are valued تقيم at average price. This is calculated by dividing the total of the price of the materials on the stock from which the material to be priced could be drawn by the number of prices used in that total. A new simple average price is to be determined when a fresh receipt is made. The rate is also revised when an earlier consignment is exhausted.

بموجب هذه الطريقة ، يتم تقييم المواد الصادرة بمتوسط السعر . يتم حساب ذلك بقسمة إجمالي سعر المواد في المخزون الذي يمكن من خلاله استخلاص المواد المراد تسعير ها على عدد الأسعار المستخدمة في هذا الإجمالي. يتم تحديد متوسط سعر بسيط جديد عند إصدار إيصال جديد. يتم مراجعة السعر أيضًا عند نفاد شحنة سابقة.

Example: The following transactions took place in respect of material in during the month of February , 2009. You are required to write up the Stores Ledger underweight average:

Feb.1/ was balance the materials 500 units @ \$ 5.

Feb .4/ 100 units purchased @ \$ 4.00 per unit .

Feb. 5/ issued 500 units

Feb .8 / 200 units purchased @ \$ 5.00per unit

Feb .10 / 300 units purchased @ \$ 6.00 per unit

Feb .12/ issued 250 units.

Feb. 28/ The inventory last period 300 units and found the cause of deference is 50 unit damage alone note that the percentage of damage are allowed 10% of inventory $\ .$

Required ; 1- prepare item card

2- journalize the transactions

Solution example (WA):-

1-Bin card

date	Received (purchasing)			Issued			balance		
	Quantity	price	amount	Quantity	price	amount	Quantity	price	amount
Feb.1							500	5	2500
Feb.4	100	4	400				600	4.83	2900
Feb.5				500	4.83	2417	100	4.83	483
Feb.8	200	5	1000				300	4.94	1483

eb.10	300	6	1800				600	5.47	3283	
eb.12				250	5.47	1367.5	350	5.47	1915.5	
Feb.28	0.28 Unit damage			50	5.47	273.5	300		1642	
Fotal	600		3200	800		4058	300		1642	
2- jo Jour	ournalize t mal Entry	he tran for an	sactions Inventory	y Purchase	e(Purch	nase Entr	y)		1	
-Jan	.4 Raw mat	terials	control		400					
	А	ccoun	ts payable	e		400				
Mov -Jan	ve Raw M .5	aterial	s to Wo	rk in Proc	ess(Iss	sue Entry	y)			
Wor	rk-in-proc	ess co	ontrol	2417		2250				
-	Kaw .	materia	ans contr	01		5230				
Jour -Jan	mal Entry .8	for an	Inventory	y Purchase	e(Purch	nase Entr	y)			
	Raw materials control Accounts payable				1000 1000					
Jour -Jan	mal Entry .10	for an	Inventory	y Purchase	e(Purch	nase Entr	y)			
0 0011	Raw mat	control ounts paya	able	1800 1800						
Mov - Ian	ve Raw M	aterial	s to Wo	rk in Proc	ess(Iss	sue Entry	y)			
Woi	Work-in-process control 136									
-	Raw	materia	als contr	ol	1	367.5				
Jour -Jan	nal entry 1 .28	to write	e off dam	aged inver	ntory					
	Loss on inventory write-off					273.5				
Star	Kaw ma	aterials	control			273.5				
first	Balance + (i	received	. – return t 250	o supplier)= 00 + 3200 5700 =	(Issued- =4058 = 5700	return to + 1642	store) + e	end balance	e	

Week 7: Level of storage level, maximum level, minimum level, economic order au EOQ (Economic Order Quantity) كمية الطلب الاقتصادية

Concept And Meaning Of Economic Order Quantity (EOQ)

Economic order quantity is also known as reorder quantity. Economic order quantity (EOQ) is a level of inventory where the total cost of holding inventory is at minimum. Economic order quantity is the level of quantity at which the cost of ordering will be equal with the storage cost of materials. In other words, the quantity of materials which is economical to be ordered at one time is known as economic order quantity. The total costs of materials consists of the ordering cost and carrying cost. While determining the economic order quantity, the ordering cost and carrying cost should be considered.

مفهوم ومعنى الكمية الاقتصادية للطلب (EOQ) هي مستوى (EOQ) تُعرف الكمية الاقتصادية للطلب أيضًا بكمية إعادة الطلب. الكمية الاقتصادية للطلب المخزون حيث تكون التكلفة الإجمالية للاحتفاظ بالمخزون عند الحد الأدنى. الكمية الاقتصادية للطلب هي مستوى الكمية التي تكون فيها تكلفة الطلب مساوية لتكلفة تخزين المواد. بعبارة أخرى، تُعرف كمية المواد التي يكون من الاقتصادي طلبها في وقت واحد بالكمية الاقتصادية للطلب، يتكون التكاليف الإجمالية للمواد من تكلفة الطلب وتكلفة النقل. أثناء تحديد الكمية الاقتصادية للطلب، يتكون التكاليف الإجمالية وتكلفة النقل.

كلف الطلبية Ordering Cost

The ordering cost is the repurchase cost and is repeated in nature. Purchasing of large quantities of materials helps reduce the ordering cost. The following costs are included in the ordering cost:

* Cost of staff appointed in the purchasing, inspection and payment departments.

* Cost of stationary purchases, telephone charge, email charge, fax charge etc. Ordering costs also includes the cost of floating tenders, the cost of making comparison among quotations, cost of paper work, cost of transpiration etc.

هي كلف اعادة الطلبية و هي تتكرر بشكل طبيعي، والشراء بكميات كبيرة يساعد على تخفيض كلف الطلبية. وكلفة الطلبية تتضمن التالي: * تكلفة الموظفين المعينين في أقسام المشتريات والمعاينة والدفع. * تكلفة المشتريات الثابتة، ورسوم الهاتف ، ورسوم البريد الإلكتروني ، ورسوم الفاكس ، إلخ. تشمل تكاليف الطلب أيضًا تكلفة العطاءات العائمة ، وتكلفة المقارنة بين عروض الأسعار ، وتكلفة العمل . الورقي ، وتكلفة النتح ، إلخ

كلف التحميل Carrying Cost

Carrying cost is concerned with the storage of materials. It suggests purchasing in small quantities. If small quantities of material purchased, the storing cost will below. The following costs are included in carrying costs. * Cost of storage (warehousing, salaries, rent etc.)

* Cost of spoilage in stores and handling

* Insurance cost of materials

* Interest on capital blocked on materials or opportunity cost

* Cost of maintaining the materials to avoid deterioration

* Cost of obsolescence due to a change in the process or product.

Calculation Of Economic Order Quantity(EOQ)

احتساب كمية الطلب الاقتصادية

The economic order quantity can be determined in the following ways. كمية الطلب الاقتصادية يمكن تحديدها من خلال الأتى: -

طريقة المعادلة I. Formula Method

طريقة الرسم Graphical Method

طريقة التجربة والخطأ 3. Trial And Error Method

1. Formula Method

With the help of following formula, the economic order quantity can be calculated.

$$EOQ = \sqrt{\frac{2(\text{Annual usage in units})(\text{Order cost})}{(\text{Annual carrying cost per unit})}}$$

Example : UBNT firm for internet receiver maker . Annual demand for the SMI is 16,000. The annual holding cost per unit is \$2.50 and the cost to place an order is \$50.

$$\frac{2*16,000*\$50}{\$2.50} = 800 \text{ units per order}$$

Stock Levels مستويات الخزين <u>Concept And Meaning Of Minimum Stock Level</u>

Minimum level or **safety stock** level is the level of inventory, below which the stock of materials should not be fall. If the stock goes below minimum level, there is a possibility that the production may be interrupted due to shortage of materials. In other words, the minimum level represents the minimum quantity of the stock that should be held at all times.

المستوى الأدنى أو مستوى المخزون الآمن هو مستوى المخزون ، والذي لا ينبغي أن ينخفض دونه مخزون المواد. إذا انخفض المخزون عن المستوى الأدنى ، فهناك احتمال أن يتوقف الإنتاج بسبب نقص المواد. بمعنى آخر ، يمثل المستوى الأدنى الحد الأدنى لكمية المخزون التي يجب الاحتفاظ بها في جميع الأوقات.

The minimum level is determined by using the following formula *Minimum Level* = *Re-order level -(Normal consumption x Normal Re-order Point)*

Calculation OF Minimum Level Or Safety Stock

احتساب الحد الادنى لمستوى خزين الامان

- 1. Re-order Level = Maximum consumption x Maximum Re-order Point.-
- 2. Normal consumption = (Maximum Consumption + Minimum Consumption)/2
- 3. normal Re-order Period = (Maximum Re-order Period + Minimum Reorder Period)/2

Example :

Re-order Period = 8 to 12 days Daily consumption = 400 to 600 units Minimum Level = ? *Re-order Level* = ? *Solution,* Minimum Level = Re-order Level - (Normal Consumption x Normal Re-order Point) = 7200 - (500 x 10) = 2200 units. *Working Notes:* 1. *Re-order Level = Maximum consumption x Maximum Re-order Point*

= 600 x 12 = 7200 units

2. Normal consumption = (Maximum Consumption + Minimum Consumption)/2= (600+400)/2 = 1000/2 = 500 units

3. Normal Re-order Period = (Maximum Re-order Period + Minimum Re-order

$Period)/2 = (12+8)/2 = 10 \, days$

Maximum Level Stock And Its Calculation الحد الاعلى للخزين واحتسابه <u>Concept And Meaning Of Maximum Level</u>

Maximum level is that level of stock, which is not normally allowed to be exceeded. Beyond the maximum stock level, a blockage of capital should be exercised to check unnecessary stock. The factory should not keep materials more than the maximum stock level. It increases the carrying cost of holding unnecessary inventory level. It is the opportunity cost of holding inventory.

الحد الاعلى للخزين هو مستوى المخزون ، والذي لا يُسمح عادةً بتجاوزه. بعد الحد الأقصى لمستوى المخزون ، يجب ممارسة الاقفال لرأس المال للتحقق من المخزون غير الضروري. يجب ألا يحتفظ المصنع بالمواد أكثر من الحد الأقصى لمستوى المخزون. فهذا يزيد من التكلفة الدفترية للاحتفاظ بمستوى المخزون غير الضروري. إنها تكلفة الفرصة البديلة للاحتفاظ بالمخزون

The maximum stock level can be calculated by using the following formula: Maximum Level = Re-order Level + Re-order quantity - (Minimum consumption x Minimum Delivery Time)

Stock Investment Stock market investing Human resource managements

Example :

Re-order quantity = 1000 units Re-order Level = 1500 units Re-ordering period = 4 to 6 days Daily consumption = 150 to 250 units Maximum Level = ?

Solution

Maximum Level = Re-order level + Re-order quantity - (Minimum (consumption x Minimum Re-ordering period =1500 +1000 - (150 *4)

= 1900 units.

Questions and Exercises

Questions

- 1- What is meant by material control?
- 2- What are the functions of material control?
- 3- What are the purchase procedures? mention it.
- 4- What is meant by pricing for exported materials and what is the need for

it?

5- What do we mean by stock levels and what are their types?

Exercises

Exercise (1): The followings transactions took place in respect of material in during the month of June, 2011. You are required to write up the Stores Ledger under(weight average - FIFO- LIFO) for al-as war company:

June 5/ was balance the materials 200 units @ \$4.

June 8/ 500 units purchased amount \$2500 and paid the transportation expense \$500.

June 9/ issued 250 units .

June 11/200 units purchased @ \$4 per unit and paid the commission \$200. June 12/300 units purchased @ \$6 per unit and paid the commission \$1 per unit.

June 15 / 550 units issued

June 19 / 50 unit return to stores from quantity issued in Jan. 15 .

June 30 / The inventory last period 400 units and found the cause of deference is 50 unit damage alone note that the percentage of damage are allowed 10% of inventory.

Exercise(2): The following data concerning industrial FINE company related to the movement of materials inventory for May 2014:

Re-order Period = 22 to 30 days

Daily consumption = 800 to 1200 units

Re-order quantity = 20000 units

Re-order Level = 36000 units

Require :Calculate the economic order quantity

Exercise(3): Annual demand = 20000 units The annual holding cost per unit is = \$3 the cost to place an order is \$50

Require :calculate the following

1- Minimum Level

2- Maximum Level

Week 8: Labor control, wage document circle, payment , methods

Labor Cost Control الرقابة على كلفة العمل

مفهوم ومعنى رقابة كلفة العمل Concept And Meaning Of Labor Cost Control

Labor cost covers one of the major portion of the total cost of a product or job. It may increase unnecessarily due to inefficiency of workers, wastage of materials by workers, idle time, unusual overtime work and high labor turnover.

Hence, the management should devise effective techniques for controlling labor cost to ensure maximum outputs of better quality at low cost through proper utilization of the labor force.

كلفة الاجور تغطي حصة رئيسة من الكلفة الاجمالية للمنتج او أمر العمل. ربما الزيادة الغير ضرورية تكون بسبب نقص كفاءة العاملين, فقدان المواد من قبل العاملين، ضياع الوقت، الوقت الاضافي غير الاعتيادي, التقلبات العالية في كلفة العمل. وبالتالي على الادارة ابتكار تقنيات فعالة للسيطرة على كلفة الاجور لضمان مخرجات عالية وجودة أفضل بكلفة أقل من خلال الاستغلال الافضل لقوة العمل.

Basically, management is concerned with controlling labor cost. Labor cost control involves such systems, procedures, techniques and tools used by the management in order to keep the labor cost of the product or job as minimum as possible. Labor cost control consists of a number of such regular activities which are carried on by various departments of the organization in a coordinated manner to ensure the availability of the best employees and their optimum utilization.

في الأساس ، تهتم الإدارة بالتحكم في تكلفة العمالة. تتضمن مراقبة تكلفة العمالة مثل هذه الأنظمة والإجراءات والتقنيات والأدوات التي تستخدمها الإدارة من أجل الحفاظ على تكلفة العمالة للمنتج أو الوظيفة عند أدنى حد ممكن. تتكون مراقبة تكلفة العمالة من عدد من هذه الأنشطة العادية التي تقوم بها الإدارات المختلفة في المنظمة بطريقة منسقة لضمان توافر أفضل الموظفين والاستغلال الأمثل لهم.

It is the system followed by the management to maximize quality output at a minimum cost. Labor cost control includes the process of developing various forms, studying and recording the activities and performance of workers, calculating the correct amount of wages and making payment in time. It also include the process of analyzing and reporting labor cost to the management for planning and decision making.

إنه النظام الذي تتبعه الإدارة لتعظيم جودة المخرجات بأقل تكلّفة. تشمل مراقبة تكلفة العمالة عملية ¹ تطوير أشكال مختلفة ، ودراسة وتسجيل أنشطة وأداء العمال ، وحساب المبلغ الصحيح للأجور وتسديد المدفو عات في الوقت المناسب. كما تشمل عملية التحليل والإبلاغ عن تكلفة العمالة للإدارة من أجل التخطيط واتخاذ القرار.

Wage Payment

دفع وتسديد الاجور_

Wages are one of the major portion in the total cost of production. There is always a chance of fraud in wage payment.

Therefore, an effective administrative and accounting control system must be implemented by the management to minimize fraud and to keep the labor cost minimum. As already stated, a number of departments are set up for the effective utilization of labor force and its proper accounting and controlling. These departments are required to work in a coordinated manner and to support the management in controlling labor cost by recording and reporting their activities on regular basis. The management should evaluate and revise its controlling system to find out leakages and to stop such leakages in time. Fraud in wage payment may result in various ways like inclusion of dummy worker in pay-roll, manipulating hours, recording extra overtime, using a wrong wage rate and registering absent workers.

تمثل الأجور الجزء الأكبر من التكلفة الإجمالية للإنتاج. هناك دائما فرصةً للاحتيال في دفع الأجور. لذلك ، يجب تنفيذ نظام فعال للرقابة الإدارية والمحاسبية من قبل الإدارة لتقليل الاحتيال وللحفاظ على الحد الأدنى من تكلفة العمالة. كما ذكرنا سابقًا ، تم إنشاء عدد من الإدارات من أجل الاستخدام الفعال للقوى العاملة والمحاسبة والرقابة المناسبة. يتعين على هذه الإدارات العمل بطريقة منسقة ودعم الإدارة في التحكم في تكلفة العمالة من خلال تسجيل أنشطتها والإبلاغ عنها على أساس منتظم. يجب على الإدارة تقييم ومر اجعة نظام التحكم الخاص بها لاكتشاف التسربات ووقف مثل هذه التسريبات في الوقت المناسب. قد يؤدي الاحتيال في دفع الأجور إلى عدة طرق مثل إدراج العامل الوهمي في قائمة الرواتب ، والتلاعب بالساعات ، وتسجيل ساعات العمل الإضافية ، واستخدام معدل أجور خاطئ ، وتسجيل العمال الغائبين.

مفهوم ومعنى نظام دفع الاجور Concept And Meaning Of Wage Payment System

The system of wage payment is the method adopted by manufacturing concerns to remunerate workers. It is the way of giving financial compensation to the workers for the time and effort invested by them in converting materials into finished products. It indicates the basis of making payment to the workers, which may be either on time basis or output basis. The selection of the system depends on the type and nature of the concern and its products. The wage payment systems can be divided into two main systems as follows

1. Piece rate system نظام معدل اجر القطعة

نظام معدل اجر الوقت Time rate system

نظام دفع الأجور هو الطريقة التي تعتمدها اهتمامات التصنيع لمكافأة العمال. إنها طريقة منح تعويض مالي للعمال عن الوقت والجهد المبذولين في تحويل المواد إلى منتجات نهائية. يشير إلى أساس الدفع للعمال ، والذي قد يكون إما على أساس الوقت أو على أساس الإنتاج. يعتمد اختيار النظام على نوع وطبيعة المؤسسة ومنتجاتها.و يمكن تقسيم أنظمة دفع الأجور إلى نظامين رئيسيين على النحو التالي Week 9: Motivations , kinds & importance, preparation of wages payrolls .

<u>Piece Rate System Of Wage Payment, Its Advantages And Disadvantages</u> نظام اجر القطعة في دفع الاجور، المزايا والعيوب

Concept And Meaning Of Piece Rate System Of Wage Payment. The piece rate system is that system of wage payment in which the workers are paid on the basis of the units of output produced. Piece rate system does not consider the time spent by the worker . Piece rate system is the method of remunerating the workers according to the number of unit produced or job completed. It is also known as payment by result or output. Piece rate system pays wages at a fixed piece rate for each unit of output produced. The total wages earned by a worker is calculated by using the following formula:

Total Wages Earned= Output x Piece Rate

Advantages Of Piece Rate System

مزايا نظام الأجر بالقطعة

The following are some important advantages of piece rate system of wage payment.

* Piece rate system pays wages according to the output produced by the worker .It encourages efficient workers.

يدفع نظام سعر القطعة الأجور وفقًا للإنتاج الذي ينتجه العامل ، ويشجع العمال الأكفاء.

* Piece rate system helps to reduce idle time.

نظام معدل القطعة يساعد على تخفيض الوقت الضائع

* Piece rate system gives incentives to the workers to adopt a better method of production for increasing their production and earning.

يعطي نظام اجر القطع حوافز للعمال لتبني طريقة إنتاج أفضل لزيادة إنتاجهم وكسبهم.

* Piece rate system helps the management to determine the exact labor cost per unit ... نظام اجر القطعة يساعد الإدارة لتحديد تكلفة العمل الدقيق لكل وحدة..

* Piece rate system reduces per unit cost of production due to increased volume of reduction. نظام اجر قطعة يقلل في تكلفة الوحدة من الإنتاج بسبب زيادة حجم التخفيض.

* Piece rate system requires less supervision cost.

نظام سعر القطعة يتطلب كلفة إشراف منخفضة

Disadvantages Of Piece Rate System العيوب في نظام القطعة The following are the notable disadvantages of piece rate system الآتى القصور أو العيوب في نظام اجر القطعة

* Piece rate system does not help in producing quality output as the workers are concentrated more on quantity instead of quality.

نظام اجر القطعة لا يساعد في انتاج مُخرجات بجودة عالية من العمالُ ويركزون على الكمية بدل النوعية.

* Piece rate system does not help for a uniform flow of production and makes difficult to regulate the production schedule.

نظام معدل القطعة لا يساعد في تنظيم تدفق الانتاج وجعله من الصعب منّظم في جداول انتاجية. It is very difficult to fix an acceptable and reasonable piece rate for each item of output or job. من الصعب جداً ايجاد وجه مقارنة ومقبولية لمعدل القطعة لكل بند من المخرجات . و العمل

* Piece rate system adversely affect the workers' health as well.

يؤثر نظام معدل اجر القطعة سلبًا على صحة العمال أيضًا

* It requires extra supervision cost for quality output and effective use of materials, tools and equipment.

يتطلب تكلفة إشراف إضافية لجودة المنتجات والاستخدام الفعال للمواد والأدوات والمعدات

<u>Time Rate System Of Wage Payment, Its Advantages And Disadvantages</u> نظام اجر الوقت لدفع الاجور، المزايا والعيوب

Concept And Meaning Of Time Rate System Of Wage Payment The time rate system is that system of wage payment in which the workers are paid on the basis of time spent by them in the factory. Under this system, the workers and employees are paid wages on the basis of the time they have worked rather than the volume of output they have produced. Hence, according to this system, wages are paid on hourly, weekly or monthly basis. Under time rate system, the wages earned by a worker is determined by using the following formula.

نظام معدل الوقت هو أن نظام الدفع الأجور التي تدفع للعمال على أساس الوقت الذي يقضيه في المصنع. في ظل هذا النظام، تدفع للعمال والموظفين الأجور على أساس الوقت الذي تم العمل به بدلا من حجم الانتاج. وبالتالي، وفقا لهذا النظام، تدفع الأجور على اساس الساعة، أسبو عي أو شهري. ووفقا لنظام المعدل الزمني، والأجور التي يحصل عليها العامل يتحدد باستخدام الصيغة التالية.

Wages Earned = Time spent(Attended) x Wage rate per hour/day/week/month

الاجور المستحقة = المستغرق من الوقت (الحضور) * معدل الاجر لكل ساعة/يوم/ اسبوع/ شهر

Advantages Of Time Rate System

فوئد نظام معدل اجر الوقت

The following are some of the important advantages of time rate system of wage payment: الآتي بعض المزايا المهمة لنظام معدل الوقت لتسديد الاجور

* Time rate system is simple to understand and easy to calculate.
نظام معدل الوقت سهل الفهم وسهل الاحتساب.

* Time rate system is quite useful for organizations that use costly inputs for quality outputs. نظام معدل الوقت مفيد جداً للمؤسسات التي تستخدم مدخلات ثمينة لمخرجات عالية . الجودة

* Time rate system is beneficial for average and below workers.

نظام معدل الوقت مفيد للعمال المتوسطين ولقليلي الكفاءة.

* Time rate system assures regular income and creates the feeling of economic security among the workers. نظام معدل الوقت يضمن دخل منتظم ويخلق شعور بالأمن الاقتصادي بين العاملين.

* Time rate system does not discriminate the workers and is preferred by trade unions. نظام معدل الوقت لا يميز بين العاملين ويفضل من قبل النقابات العمالية.

Disadvantages Of Time Rate System

العيوب في نظام معدل اجر الوقت

The following are some notable disadvantages of time rate system of wage payment.

* Time rate system does not help in increasing output and improving efficiency as there is no correlation between effort and reward.

* Time rate system is not justifiable between efficient and inefficient workers and skilled and unskilled workers.

* Time rate system pays for idle time, which increases the cost of production. Time rate system encourages a go-slow tendency among workers during

working hours and encourages them to work overtime.

* It is difficult to estimate exact labor cost in advance.

* It requires strict supervision to get the required quantity of output.

فيما يلي بعض العيوب الملحوظة لنظام المعدل ألزمني لدفع الأجور. * نظام معدل الوقت لا يساعد في زيادة الإنتاج وتحسين الكفاءة حيث لا يوجد ارتباط بين الجهد والمكافأة. * نظام معدل الوقت ليس له ما يبرره بين العمال الأكفاء و غير الكفؤين والعمال المهرة و غير المهرة. * يدفع نظام معدل الوقت وقت الخمول ، مما يزيد من تكلفة الإنتاج. يشجع نظام معدل الوقت على الاتجاه البطيء بين العمال أثناء ساعات العمل ويشجعهم على العمل لوقت إضافي. * من الصعب تقدير تكلفة العمالة الدقيقة مسبقًا. * من الصعب تقدير تكلفة العمالة الدقيقة مسبقًا. Week 10: Wages problems, over time, idle time, premiums holiday, direct and indirect labor entry. .

1. Time Wage System or Time Rate System : Under this system, laborers get wage on the basis of time which is utilized in organization. This wages may be charged on per hour, per day, per month or per year . There is no relation or quantity of output and wages in this method. this method is most popular. Its other name is day wages system or time wok system.

We can calculate wages with following formula

نظام الأجور الزمنية أو نظام معدل الوقت: بموجب هذا النظام ، يحصل العمال على أجر على أساس الوقت المستخدم في المنظمة. قد يتم فرض هذه الأجور على كل ساعة أو في اليوم أو في الشهر أو في السنة. لا توجد علاقة أو كمية من الإنتاج والأجور في هذه الطريقة. هذه الطريقة هي الأكثر شيوعًا. الاسم الآخر هو نظام الأجور اليومية أو نظام العمل الزمني.

يمكننا حساب الأجور بالصيغة التالية

Total Wages = Time taken X Rate

For Example:- A worker produced 10000 articles سلعة in 7600 hours . His hourly wage rate is \$ 2.

Required : Calculate the wage of the worker when he is paid on the basis of time.

Solution :- Applying the formula, we get : Wage = T.T. * R = 7600 * 2 = \$15200

2. Piece Wage System or Work Rate System :

Under this method or system, laborers can get the wages on the basis of their work done. No time element will be used for calculation of wages. Rate is also on the basis of quantity or unit produced. Under this, method, laborer tries to best for producing the products fatly for getting more wages. This method is also called payment by result.

بموجب هذه الطريقة أو النظام ، يمكن للعمال الحصول على الأجور على أساس عملهم المنجز . لن يتم استخدام أي عنصر زمني لحساب الأجور . السعر هو أيضا على أساس الكمية أو الوحدة المنتجة في ظل هذه الطريقة ، يحاول العامل أن يكون أفضل لإنتاج منتجات الكبيرة جدا للحصول على المزيد من الأجور . تسمى هذه الطريقة أيضًا الدفع بالناتج.

formula:- Total Wages = Unit Produced X Rate per unit For Example : 2500 units were produced by a worker in 1200 h\$ Rate of production is 3 /- per unit. Calculate the wage of the worker if he is paid according piece rate method.

Solution :- By applying formula, we get : Wages = units produced X rate per unit = $2500 \times 3 = 7500 **Examples (1):** Acer one staff working 10 hours a day. The time wage rate of \$ 200 and to you the following additional information:

The daily working hours 8 hours. The overtime hours are calculated on the basis of 150% of the ordinary course of business

Required: 1. calculating the worker's wage payable and extra time.

2. recording journal entries

Solution:

1- Accrued wages =(hours' work daily * Wage rate per h.)+ (hours' work additional * Wage rate per h.* 150%)

$$= (8 * 200) + (2 * 200 * 150 \%)$$

= 1600 + 600 ----- 2200

2-	Work In Process Control	1600	
	Factory Overhead	600	
	Factory Payroll		2200

Example (2):- One workers Apple work of the company during the last week, four days and missed work days ,and delayed two hours in these days and has a daily half-hour as the break knowing that the wage rate per day is \$100 and the number of days workweek, five days and 8hours of work each day. Required:-1.calculating the worker's wage payable 2.wage analysis 3.recording journal entries Solution : Accrued wages=(Number of days of work * per day wage rate)absence (Hours delay) غياب (4* \$100) – **25** = \$ 375 2- Wage rate per hour = per day wage rate / hours' work daily = \$ 100 / 8 h = \$ 12.5 Absence = 2 hour * \$ 12.5 Wage rate per hour = \$ 25 Break=0. 5 hour * 4 days = 2 hour =2 hour * \$ 12.5 = \$25 >>>factory overhead 3- Work in Process Control 350 25 Factory overhead Factory Payroll 375

Example (3) : Oscar Industrial Co. used to pay wages pace system. The following number of units produced worker David in the first week of February 2010 knowing the unit wage rate is \$ 10 (38-61-58-40-50) **required** : 1. Calculating the worker's wage payable

2. Recording journal entries

Solution : 1-

first day	= 38 units	* \$ 10 = \$ 380
Second day	= 61 units	* \$ 10 = \$ 610
Third day	= 58 units	* \$ 10 = \$ 580
Forth day	=40 units	* \$ 10 = \$ 400
Fifth day	= 50 units	* \$ 10 = \$ 500
Total		\$ 2470

2- Work in Process Control 2470 Factory Payroll 2470

Questions and exercises

Questions

- 1- What is meant by labor cost?
- 2- What are the methods of calculating wages?
- 3- What is wasted time?
- 4- What are the rewards and wages in kind?

Exercises

Exercise 1: Ahmed Jassim works in Smartin dustrial company shall receive a monthly salary of \$600and follows the details of his work during the month of April for the year 2010:

3days of absence from work

During the month the work of Ahmed four additional hours for normal work note that the company additional hour wagerate is calculate dat a rate of 150% of normal hour.

<u>Note</u> that month,30 days by 8hours daily punctuated hour break and that the actual working days during the monthis22 days.

Required:

1.calculating the worker's wage payable

2.wageanalysis

3.recordingjournal entries

Exercise 2: Riad Kassem works in Sniper industrial company that piece tracking system in the payment of wages and follows the details of units produced by him vinegar month of October 2013, note that the piece rate wage is \$ 5:

The first week, including 113 pieces of 8 defective pieces

The second week of 121 pieces, including 11 pieces in process

The third week of 126 pieces, including a damaged piece 6000

The fourth week 130 pieces

required : 1. Calculating the worker's wage payable

2. Recording journal entries

Week 11: Factory overhead control, actual expenses ,restriction, estimated expenses, allocate expenses over all centers , rules of distribution.

Factory Overhead النفقات العامة

Overhead costs are : the costs that belong to more than one product and it is difficult to link or allocate them directly to the units of the final product, or they are the costs that are spent in order to perform a specific activity and benefit from more than one product, it is spent on the production activity as a whole.

تعرف التكاليف العامة على انها التكاليف التي تخص اكثر من منتج ومن ال صعب ربطها او تخصيُصها بصورة مباشرة على وحدات المنتج النهائي و هي تكالي ًف تنفق في سبي ًل اداء نشاط معين. منها اكثر من منتج أي تنفق على النشاط الانتاجي ككل.

The important steps involved in Overhead Accounting are:-

- 1. Collection, Classification of Overheads.
- 2. Allocation, Apportionment and Reapportionment of overheads..
- 3. Overheads of Absorption.

الخطوات الهامة المتضمنة في المحاسبة العامة هي: -1. جمع وتصنيف النفقات العامة. 2 - تخصيص وتخصيص وإعادة توزيع النفقات العامة 3- النفقات العامة للامتصاص

1. Overheads collection is the process of recording each item of cost in the records maintained for the purpose of ascertainment of cost of each cost center or unit. جمع النفقات العامة هو عملية تسجيل كل بند من بنود التكلفة في السجلات المحفوظة لغرض التأكد من تكلفة كل مركز تكلفة أو وحدة.

2. Indirect costs are distributed to the entire factory among the departments of the organization, whether production or service, by allocating a percentage of the general commissioning to cost centers on a basis that allows the distribution of elements in fair proportions, as the costs distributed are not related to the work of the department (the center) itself.

يتم توزيع التكاليف غير المباشرة على كامل المصنع بين أقسام المؤسسة سواء كانت إنتاجية أو خدمية وذلك بتخصيص نسبة من التكليف العام لمر اكز التكلفة على أساس يسمح بتوزيع العناصر بنسب عادلة حيث يتم توزيع التكاليف. لا تتعلق بعمل القسم (المركز) نفسه.

3. The application of cost center theory in charging overhead costs to production units requires follow the following steps:

• Determine cost centers (materials, wages, or both)

- Inventory and estimation of the overhead cost elements.
- Charging costs to cost centers.

After counting and determining the indirect costs, they are distributed on two levels: 1. Primary Distribution 2. secondary distribution

> بعد حساب التكاليف غير المباشرة وتحديدها ، يتم توزيعها على مستويين: 1. التوزيع الأولي

التوزيع الثانوي
 مله منطنين مسمسوم مع

1.Primary Distribution: the distribution of indirect costs to the cost centers. The centers within the organization: which are service centers (such as maintenance services, a restaurant), and production centers (manufacturing, assembly) so that the cost of each center (whether service or production) of these centers includes its original cost. Added to it what was downloaded.

التوزيع الأساسي: توزيع التكاليف غير المباشرة على مراكز التكلفة. المراكز داخل المؤسسة: وهي مراكز (سواء خدمة (مثل خدمات الصيانة ، ومطعم) ، و مراكز إنتاج (تصنيع ، تجميع) بحيث تشمل تكلفة كل مركز (سواء خدمة أو إنتاج) لهذه المراكز تكلفتها الأصلية. يضاف إليها ما تم تنزيله خطوات التوزيع الأولي: 1. تحديد التكاليف العامة مثل: الاندثار ، الصيانة، التامين , الحوادث ، على العمال، الايجار ، اضاءة تدفئة وتبريد ، والفحص، الاطعام، الطبابة, تنظيف، تعويضات، رواتب المشرفين، بحث وتطوير ، النقل الداخل والخزن ، التشحيم. 2. تحديد الاساس لتوزيع النكاليف العامة و هناك عدة اسس: أ - قيمة الألات والمباني لتوزيع الاندثار والتامين والتصليح والصيانة. 9. من المساحة لتوزيع الانكاليف العامة و هناك عدة اسس: 1 - قيمة الألات والمباني لتوزيع الاندثار والتامين والتصليح والصيانة. 9. من المساحة لتوزيع الايجار ، الاضاءة إلى والتصليح والصيانة. 1 - قيمة الألات والمباني لتوزيع الاندثار والتامين والتصليح والصيانة. 1 - قيمة الألات والمباني لتوزيع الاندثار والتامين والتصليح والصيانة. 2 - اجور العمال لتوزيع الاندثار والمامين على العمال ، تعويضات العمال، مكافئاتهم. 2 - ماحور العمال لتوزيع تكاليف العامة ، رواتب المشرفين , البحث والتطوير . 3 - قيمة المواد لتوزيع تكاليف العامة ، رواتب المشرفين , البحث والتطوير . 3 - وعمد المواد لتوزيع تكاليف العامة ، رواتب المشرفين , البحث والتطوير . 4 - عده المواد لتوزيع تكاليف الحامة ، رواتب المشرفين . 5 - عدد المواد لتوزيع تكاليف التأمين على العمال ، على المواد الاولية . 2- Secondary distribution: that is, the costs of the service centers are distributed to the production centers (for example, the distribution of the costs of the maintenance center, all original and charged to the commodity production centers.

لتوزيع الثانوي: أي أن تكاليف مراكز الخدمة توزع على مراكز الإنتاج (على سبيل المثال ، توزيع تكاليف مركز الصيانة ، كلها أصلية وتحمل على مراكز إنتاج السلع

- Direct Signal Method مباشرة
- step down method تنازلية
- Reciprocal method تبادلية

المباشرة الطريقة The Direct Method

It assumes that there is no reciprocal relationship between the service departments, According to this method, the costs of each service center are allocated separately to the production centers only to the extent that they benefit from the services of the service centers, provided that the basis of distribution is chosen according to the nature of the service performed by the service center.

يفترض عدم وجود علاقة متبادلة بين الاقسام الخدمية ، ووفقًا لهذه الطريقة ، يتم تخصيص تكاليف كل مركز خدمة بشكل منفصل على مراكز الإنتاج فقط إلى الحد الذي تستفيد فيه من خدمات مراكز الخدمة ، بشرط أن يكون الأساس يتم اختيار التوزيع وفقًا لطبيعة الخدمة التي يؤديها مركز الخدمة.

الطريقة التنازلية التنازلية

According to this method, the costs of each service center are distributed to each of the production centers and other service centers, according to the relative importance of the downward benefit from the services of each service center separately. Therefore, this method requires that the production service centers be arranged in descending order according to their relative importance, so that it starts first with distributing the costs of the most important service center that provides services to the largest possible number of service center and production centers and ends with distributing the costs of the service center that leads services to the least number of centers i.e. centers Production only, where the costs of the relatively most important service center are distributed first, then the next, and it ends with distributing the costs of the last service center to the production centers only.

وفقًا لهذه الطريقة ، يتم توزيع تكاليف كل مركز خدمة على كل منتج المراكز ومراكز ألخدمة الأخرى ، حسب الأهمية النسبية للمزايا التنازلية من خدمات كل مركز خدمة على حدة. لذلك ، تتطلب هذه الطريقة أن يكون يتم ترتيب مراكز خدمة الإنتاج بترتيب تنازلي حسب أهميتها النسبية ، بحيث يبدأ أولاً بتوزيع تكاليف أهم مركز خدمة يقدمه الخدمات لأكبر عدد ممكن من مراكز الخدمة ومراكز الإنتاج وتنتهي بتوزيع تكاليف مركز الخدمة الذي يقود الخدمات إلى أقل عدد من المراكز ، أي مراكز الإنتاج فقط ، حيث تكون تكاليف مركز الخدمة الأكثر أهمية نسبيًا توزع أولاً ثم يتنهي بتوزيع تكاليف آخر مركز خدمة على مراكز الإنتاج فقط.

Week 12: Direct distribution method, step down method Direct Method of Allocation

The direct method allocates costs of each of the service departments to each operating department based on each department's share of the allocation base. Services used by other service departments are ignored. This means the direct method does not recognize service performed by other service departments. For example, if Service Department A uses some of Service Department B's services, these services would be ignored in the cost allocation process. Because these services are not allocated to other service departments, some accountants believe the direct method is not accurate.

الطريقة المباشرة للتخصيص تقوم الطريقة المباشرة بتخصيص تكاليف كل قسم من أقسام الخدمة لكل قسم تشغيلي بناءً على حصة كل قسم من قاعدة التخصيص. يتم تجاهل الخدمات التي تستخدمها أقسام الخدمة الأخرى. و هذا يعني أن الطريقة المباشرة لا تتعرف على الخدمة التي تؤديها أقسام الخدمة الأخرى. على سبيل المثال، إذا استخدم قسم الخدمة أ بعض خدمات قسم الخدمة ب، فسيتم تجاهل هذه الخدمات في عملية تخصيص الطريقة. ولأن هذه الخدمات لا يتم تخصيصها لأقسام الخدمة الأخرى، يعتقد بعض المريقة المباشرة ليست دقيقة.

Example 1 : Acer company has two production center and two service center , the relating to a period are as under

	<u>SERVICE ce</u>	nter		
PRODUCTION center				
	Maintenance	PERSON	INEL MOULDI	NG
FINISHING				
Direct department costs	\$126,000	\$24,000	\$130,000	\$120,000
Square meters			15,000)
3,000				
Number of employees	20	10	40	30
Machine-hours			30,000	
20,000				
Required: prepare staten	nent the distrib	ution of exp	penses in the total	method
		-	-	

and direct method. **The Total method**:

Maintenance+ PERSONNEL = $(\$126,000 + \$24,000) \rightarrow \$150,0000$ • Total Machine-hours in production departments: 30,000 + 20,000 = 50,000 hours • service center cost allocated to moulding 30000 / 50000 * 150000 = \$90000• service center cost allocated to finishing $(20,000 \div 50,000) * \$150,000 = \$60,000 =$

SEF	RVICE cente	er		
PRODUCTION center				
Ma	aintenance	PERSO	NNEL	
MOULDING FINISHING				
Direct department costs \$12	26,000 \$	24,000	\$130,000	\$120,000
Distribution service center ((126,000)	24,000)	90,000	60,000
_	000	000	220)000
180000				
<u>The Direct Method</u>				
Maintenance \$126,000				
•Total Machine-hours in pro	oduction dep	artments:		
30,000 + 20,000 = 50,000	-			
•Maintenance center cost allo	cated to mo	ulding		
=(30000 50000) *\$126000=	\$75000			
•Maintenance center cos	t allocated to	finishing		
$=(20,000 \div 50,000) * \$126,00$	00 = \$50,400) =		
PERSONNEL \$ 24000	$(10 \cdot 20)$	70		
Total Number of employees	(40 + 30) =	/0		
PERSONNEL center cost and $(40 \div 70) * 0.24000 - 0.1271$		oulding		
$= (40 \div 70)^{*} 5 24000 = 51571$	4	china		
$-(20 \cdot 70) * $ $(24000 - $		Istillig		
$=(30 \div 70)^{\circ}$ \$ 24000= \$1020	SED VICI	Econtor	DI	
contor	SERVICI		11	NODUCTION
center	Maintenance	PERSO	NNEL OL	II DING
FINISHING	Maintenanee		INITEL OC	
Direct center costs	\$126,000	\$24.0	00 \$130) 000
\$120,000	φ120,000	$\psi 2 + 0$	φ150	,000
Distribution Maintenance cer	nter (126.00))	75	5 0 5 0 4 00
Distribution PERSONNEL c	enter	0) ()	73, 24 000)	13714
10286		(2	- ,000/	10/11
		0	0 —	219.314
180,686		-	-	,

Example 2: Smart	compar	ny has four	production cer	nter and t	three ser	rvice	
center, the relating to a period are as under service department Production department							
	Service	departmen	L .	Tiouuc	, uon dep	artificiti	
	power	Human recourses	Maintenance building	A	В	С	D
Factory overhead	30000	10000	20000	50000	40000	60000	90000
Kw hours				12000	18000	20000	50000
Number of employs				30	10	20	40
Square feet				5000	6000	4000	5000
method and single The Total method Power+ Human rec \$10,000+\$20,000 \rightarrow \$60,0000 • Total Kw hours in 12000 +18000+200 service center cost = (12000/10000) * (service center = (18000/100000) (service center = cost allocated to B center = (20000/100000) (service center cost allocated to D center = (50000/100000) *	e (Direct courses +) product 00+5000 allocated \$60000 = *\$60000 * \$60000 * \$60000 * \$60000 * \$60000 * \$60000	t) method -Maintenance tion department 00=100,000 I to A cente = \$ 7200 0) = \$10800 0) = \$12000 0) = \$30000	e building= (\$ nents:) r	30,000	+		

	service d	Production department					
	power Human Maintenanc recourses building		Maintenance building	А	В	С	D
Factory overhead	30000	10000	20000	50000	40000	60000	90000
Distribution service center	(30000)	(10000)	(20000)	7200	10800	12000	30000
Total	0	0	0	57200	50800	72000	120000

The Direct Method

<u>power \$30,000</u> •Total Kw hours in production departments: 12000 + 18000 + 20000 + 50000 = 100,000Power center cost allocated to A center = (12000/100000) * \$30000 = \$3600 (power center cost allocated to B center =

=(1800/10000) * 30000 = \$5400 Power center cost allocated to C center =(20000/100000) * \$30000= \$6000 Power center cost allocated to D center = (50000/100000) *\$30000=\$15000 <u>Human recourses \$10000</u> •Total Number of employs in production departments: 30 + 10 + 20 + 40 = 100<u>Human recourses</u> center cost allocated to A center =(30/100)*\$10000=\$3000 Human recourses center cost allocated to B center =

= (10/100) *\$10000 =\$1000 <u>Human recourses</u> center cost allocated to C center = $(20\div100)$ *\$10000 =\$20000 <u>Human recourses</u> center cost allocated to D center = (40/100) *\$10000 = \$4000 <u>Maintenance building \$20,000</u> •Total Square feet in production centers: 5000+6000+4000+5000= 20,000 <u>Maintenance building</u> center cost allocated to A center =(5000/20000) * \$20000 =\$5000 Maintenance building center cost allocated to B center =

= (6000/20000) *\$20000 = \$6000 <u>Maintenance building</u> center cost allocated to C center =

=(4000/20000)*\$20000= \$4000 <u>Maintenance building</u> center cost allocated to D center = (5000/20000) * \$20000 =\$5000

	service d	epartment		Production department			
	power	Human recourses	Maintenance building	А	В	C	D
Factory overhead	30000	10000	20000	50000	40000	60000	90000
Distribution power center	(30000)			3600	5400	6000	15000
Distribution Human recourses center		(10000)		3000	1000	2000	4000
Distribution Maintenance building center			(20000)	5000	6000	4000	5000
Total	0	0	0	61600	52400	72000	114000

Week 13: Step-Down Method The Step-Down Method:

The step-down method is also called the sequential method. This method allocates the costs of some service departments to other service departments, but once a service department's costs have been allocated, no subsequent costs are allocated back to it. The choice of which department to start with is important. The sequence in which the service departments are allocated usually effects the ultimate allocation of costs to the production departments, in that some production departments gain and some lose when the sequence is changed. Hence, production department managers usually have preferences over the sequence. The most defensible sequence is to start with the service department that provides the highest percentage of its total services to other service departments, or the service department that provides services to the most number of service departments, or the service department with the highest costs, or some similar criterion.

طريقة التخفيض التدريجي: تسمى طريقة التخفيض التدريجي أيضًا بالطريقة المتسلسلة. تقوم هذه الطريقة بتخصيص تكاليف بعض أقسام الخدمة لأقسام خدمة أخرى، ولكن بمجرد تخصيص تكاليف قسم الخدمة، لا يتم تخصيص أي تكاليف لاحقة له مرة أخرى. يعد اختيار القسم الذي يجب البدء به أمرًا مهمًا. يؤثر التسلسل الذي يتم به تخصيص أقسام الخدمة عادةً على التخصيص النهائي للتكاليف لأقسام الإنتاج، حيث تكسب بعض أقسام الإنتاج وتخسر بعضها الآخر عند تغيير التسلسل. وبالتالي، يكون لدى مديري أقسام الإنتاج عادةً تفضيلات بشأن التسلسل. التسلسل الأكثر قابلية للدفاع عنه هو البدء بقسم الخدمة الذي يوفر أعلى نسبة من إجمالي خدماته لأقسام الخدمة الأخرى، أو قسم الخدمة الذي يوفر خدمات مرابعة مرابعة الذي يوفر أعلى المام الخدمة، أو قسم الخدمة الذي لديه أعلى تكاليف، أو بعض المعايير الممائلة.

Example3 :

SEF	RVICE Centers		
PRODUCTION Centers		management	
maintenance التجميع	cutting	summation	
Direct Center costs	\$126,000 \$160,000	\$24,000	\$100,000
Number of employees	30	90	150
30			
Direct labor hours			2,100
10,000			
Machine-hours			20,000
30,000			
Required: prepare statement	the distribution of	of service centers c	costs in the
Step-Down method.			

solution: 270 = (90 + 15 Step 1: service \$(126,000) (90 \$(126,000) (15 \$(126,000) (30 Step 2:maintena \$(66,000) (2000 \$(66,000) (300	0 + 30 manag $\div 270)$ $(0 \div 27)$ $\div 270)$ ince > $00 \div 5$ $00 \div 5$ So	()) 2 () = \$42 (0) = \$42 (0) = \$12 () = \$12	 270 2,000 r 70,000 4,000 (66,00) = \$26 = \$39 center 	mainter) cuttin summa 0) =(2 ,400 ,600 su	nance Center ag Center ation Center 24000 + 42000 cutting Center ummation Cen) er ter Productio	n center
	sei ma	rvice anagen	nent		maintenance	cutting	summation
Direct Center costs	\$1	26,000)		\$24,000	\$100,000	\$160,000
Distribution of service management	(12	26000)			42000	70000	14000
Distribution of Maintenance center					(66000)	26400	39600
otal	0				0	196400	213600
Example 4:Whe of records and b that there are co follows: Rent factory 50 power Dynamic Heating and co depreciation of insurance of em If I know that th	en sele books bommon 000 es 3000 oling 1 f buildi nployee he avai Prod	of anal n eleme 0 1000 ings 20 es 500 ilable o uction	nd iden lytical ents th 000 0 data or depart	ntify fa materi hat belo n the co tment	actory overhead als and wages ong to more that ost centers as f department	d elements and expens an one cent Sollows: Servi	of the reality ses shows er were as
	А	В	С	D	Maintenance	Mai	intenance
Area m^2	200	400	300	600	machine 200	500 300	ung
				50)		

Power machinery/kW	350	150	200	300		
Number of employees	150	50	150	100	30	20
Required:1-Det 2- p A- step down m Solution:1- <u>Rent factory 50</u> \$5000 ÷2000 =	ermine repare hethod 00/200 \$ /m 2	the s stater and B 0_(200 2.5	hare of nent th - total 0+400-	f each ne distr metho +300+	Center c fibution od and C 600+200	of factory overhead elements. of expenses in the: C- single method. 0+300)
Share A center	of Ren	t facto	ory		200 m	* \$2.5 = \$500
Share B center	of Ren	t facto	ory		400 m	n * \$2.5 = \$1000
Share C center	of Ren	t facto	ory		300 m	n * \$2.5 = \$750
Share D center	of Ren	t facto	ory	6	600m	n * \$2.5 = \$1500
Share main. Ma	icn. ce	nter of	f Kent	Tactor	y 200m	* 52.5 = 5500
Share main. but	namics	enter \$300	01 Ker 0 ± 10	10 1acto) fy 50011 3 /kw	1 + 52.5 = 5750 (350+150+200+300)
Share Δ center	of nov	φ300 ver Dv	0 - 10 namica	00 – φ ε 350k	3 / K W w * \$3-	\$1050 \$1050
Share B center	ofpow	er Dy	namics	150kv	v * \$3=	\$450
Share C center	ofpow	ver Dv	namics	200kv	v* \$ <u>3</u> = \$	\$600
Share D center	ofpov	ver Dy	namics	s 300k	w* \$3=	\$900
Heating and co	oling_\$	1000	÷ 2000	= \$0.	5	
/m2000(2	200+40	0+300)+600+	-200+3	300)	
Share A center	of Hea	ting a	nd coc	oling20	0 m * \$0	0.5 = \$100
Share B center	of Hea	ting a	nd coo	oling		400 m * \$0.5 = \$200
Share C center	of Hea	ting a	nd coo	oling		300 m * \$0.5 = \$150
Share D center	of Hea	ting a	nd coc	oling		600m * \$0.5= \$300
Share main. Ma	ich. ce	nter of	f Heati	ng and	l cooling	200m * \$0.5 = \$100
Share main. but	ilding	center	of He	ating a	and cool	ing300m * \$0.5 = \$150
depreciation of	<u>i buildi</u>	<u>ngs</u> \$2	$2000 \div$	2000	= \$1 /m	
2000(200+400 Shara A cantor	+300+	·600+2	200+3(10) 1:1.1:n	200	
Share A center	of dep	reciati	on of		igs 200 :	m * \$I = \$200
Share B center	of dep	reciati	on off	Julialin	gs400 II. gs300 m	5^{+} 5^{-} 5^{+} 5^{-} 5^{+} 5^{-} 5^{+} 5^{-} 5^{+} 5^{-} 5^{+} 5^{-} 5^{+} 5^{-} 5^{+} 5^{-} 5^{+} 5^{-} 5^{+
Share D center	of den	reciati	on of	buildir	gs300 II. 195 600r	n * \$1 - \$500 n * \$1 - \$600
Share main Ma	or ucp	nter of	f denre	ciation	ngs 0001	dings $200m * $1 - 200
Share main, but	ilding	center	of de	preciat	ion of but	uildings $300m * $1 = 300
insurance of w	orkers	\$ 500	0÷500	= \$ 10	each wo	ork
500(150+50+15	50+100	+30+2	20)	7 - 0		
Share A center	of insu	irance	ofem	ployee	S	150 * \$10 = \$1500
Share B center	of insu	rance	ofem	ployee	S	50 m * \$10 = \$500
Share C center	of insu	rance	ofemp	ployee	S	150 m * \$10 = \$1500

Share D center of insurance of employees100m * \$10= \$1000Share main. Mach. center of insurance of employees30m * \$10= \$300Share main. building center of insurance of employees20m * \$10= \$200

Production center Service center										
	А	В	С	D	Maintenance machine	Maintenance building				
Rent factory	500	1000	750	1500	500	750				
power Dynamics	1050	450	600	900						
Heating and cooling	100	200	150	300	100	150				
depreciation of buildings	200	400	300	600	200	300				
insurance of employees	1500	500	1500	1000	300	200				
Total	3350	2550	3300	4300	1100	1400				
2-Astep down method <u>Maintenance building \$1400</u> 1700 (200+400+300+600+200+0) Share A center of Service center Maintenance building(200÷1700) * \$1400= \$165 Share B center of Service center Maintenance building(400÷1700) * \$1400= \$329 Share C center of Service center Maintenance building(300÷1700) * \$1400= \$247 Share D center of Service center Maintenance building (600÷1700) * \$1400= \$494 Share main. Mach. center of Service center Main. building (200÷1700) * 1400= \$494 Share main. Mach. center of Service center Main. building (200÷1700) * 1400= \$165 <u>Maintenance machine \$1100</u> Power machinery / kW1000(350+150+200+300) Share A center of Service center Maintenance machine (350÷1000) * \$1265=										

Share B center of Service center Maintenance machine(150÷1000) * \$1265= \$190 Share C center of Service center Maintenance machine(200÷1000) * \$1265= \$253 Share D center of Service center Maintenance machine (300÷1000) * \$1265= \$379

	Produc	tion cente	er	Service center		
	А	В	С	D	Maintenance machine	Maintenance building
Factory overhead	3350	2550	3300	4300	1100	1400
Distribution Maintenance building	165	329	247	494	165	(1400)
Distribution Maintenance machine	443	190	253	379	(1265)	
Total	3958	3069	3800	5173	0	0

Week 14: Activity based costing (ABC). Activity-Based Costing (ABC):

Activity-based costing (ABC) is a costing method that assigns <u>overhead</u> and indirect costs to related products and services. This <u>cost accounting</u> <u>method</u> recognizes the relationship between costs, overhead activities, and manufactured products, assigning indirect costs to products less arbitrarily than traditional costing methods. However, some indirect costs—such as management and office staff salaries—are difficult to assign to a product.

- Activity-based costing (ABC) is a method of assigning overhead and indirect costs—such as salaries and utilities—to products and services.
- This system of cost accounting is based on "activities"; an activity is any event, unit of work, or task with a specific goal.
- All activities are cost drivers: Purchase orders and machine setups are examples of activities.
- The cost driver rate, which is the cost pool total divided by the cost driver total, is used to calculate the amount of overhead and indirect costs related to a particular activity.
- ABC is used to get a better grasp on costs, allowing companies to form a more appropriate pricing strategy.

نظام التكلفة القائم على النشاط (ABC) هو طريقة حساب تكلفة تقوم بتعيين التكاليف العامة وغير المباشرة للمنتجات والخدمات ذات الصلة. تتعرف طريقة حساب التكلفة هذه على العلاقة بين التكاليف والأنشطة العامة والمنتجات المصنعة، وتقوم بتعيين التكاليف غير المباشرة للمنتجات بشكل أقل تعسفًا من طرق حساب التكلفة التقليدية. ومع ذلك، فإن بعض التكاليف غير المباشرة - مثل رواتب الإدارة وموظفي المكتب - يصعب تعيينها لمنتج ما.

نظام التكلفة القائم على النشاط (ABC) هو طريقة لتعبين التكاليف العامة وغير المباشرة - مثل الرواتب والمرافق - للمنتجات والخدمات.

يعتمد نظام محاسبة التكاليف هذا على "الأنشطة"؛ النشاط هو أي حدث أو وحدة عمل أو مهمة لها هدف محدد.

جميع الأنشطة هي محركات تكلفة: أوامر الشراء وإعدادات الآلات هي أمثلة على الأنشطة.

يتم استخدام معدل محرك التكلفة، و هو إجمالي مجموعة التكاليف مقسومًا على إجمالي محرك التكلفة، لحساب مقدار التكاليف العامة وغير المباشرة المتعلقة بنشاط معين.

للحصول على فهم أفضل للتكاليف، مما يسمح (ABC) تُستخدم طريقة التكلفة القائمة على النشاط للشركات بتشكيل استر اتيجية تسعير أكثر ملاءمة

How Activity-Based Costing (ABC) Works

Activity-based costing (ABC) is mostly used in the manufacturing industry. It enhances the reliability of cost data, hence producing nearly true costs and better classifying the costs incurred by the company during its production process.

This costing system is used in target costing, product costing, product line profitability analysis, customer profitability analysis, and service pricing. Activity-based costing is used to get a better grasp on costs, allowing companies to form a more appropriate pricing strategy.

The formula for activity-based costing is the cost pool total divided by the cost driver, which yields the cost driver rate. The cost driver rate is used in activity-based costing to calculate the amount of overhead and indirect costs related to a particular activity.

كيف تعمل طريقة التكلفة القائمة على النشاط (ABC) تُستخدم طريقة التكلفة القائمة على النشاط (ABC) في الغالب في صناعة التصنيع. و هي تعمل على تعزيز موثوقية بيانات التكلفة، وبالتالي إنتاج تكاليف حقيقية تقريبًا وتصنيف التكاليف التي تتكبدها الشركة أثناء عملية الإنتاج بشكل أفضل.

يُستخدم نظام التكلفة هذا في تحديد التكلفة المستهدفة، وتكلفة المنتج، وتحليل ربحية خط الإنتاج، وتحليل ربحية العملاء، وتسعير الخدمة. تُستخدم طريقة التكلفة القائمة على النشاط للحصول على فهم أفضل للتكاليف، مما يسمح للشركات بتشكيل استر اتيجية تسعير أكثر ملاءمة. صيغة التكلفة القائمة على النشاط هي مجموع مجموعة التكاليف مقسومًا على محرك التكلفة، مما ينتج عنه معدل محرك التكلفة. يُستخدم معدل محرك التكلفة في التكلفة القائمة على النشاط لحساب معلى فهم أفضل النفقات العامة والتكاليف غير المباشرة المتعلقة بنشاط معين.

The ABC calculation is as follows:

- 1. Identify all the activities required to create the product.
- 2. Divide the activities into cost pools, which include all the individual costs related to an activity. Calculate the total overhead of each cost pool.
- 3. Assign each cost pool activity cost drivers, such as hours or units.
- 4. Calculate the cost driver rate by dividing the total overhead in each cost pool by the total cost drivers.
- 5. Multiply the cost driver rate by the number of cost drivers.

حساب التكلفة على أساس النشاط هو كما يلي: 1. تحديد جميع الأنشطة المطلوبة لإنشاء المنتج. 2. تقسيم الأنشطة إلى مجموعات تكاليف، والتي تشمل جميع التكاليف الفردية المرتبطة بنشاط. حساب إجمالي النفقات العامة لكل مجموعة تكاليف. 3. تعيين محركات تكلفة نشاط مجموعة التكاليف، مثل الساعات أو الوحدات. 4. حساب معدل محرك التكلفة عن طريق قسمة إجمالي النفقات العامة في كل مجموعة تكاليف على محركات التكلفة الإجمالية. 5. ضرب معدل محرك التكلفة في عدد محركات التكلفة. As an activity-based costing example, consider Company ABC, which has a \$50,000 per year electricity bill. The number of labor hours has a direct impact on the electric bill. For the year, there were 2,500 labor hours worked; in this example, this is the cost driver. Calculating the cost driver rate is done by dividing the \$50,000 a year electric bill by the 2,500 hours, yielding a cost driver rate of \$20. For Product XYZ, the company uses electricity for 10 hours. The overhead costs for the product are \$200, or \$20 times 10.

كمثال للتكلفة القائمة على النشاط، ضع في اعتبارك شركة ABC، التي لديها فاتورة كهرباء بقيمة 50000 دولار سنويًا. عدد ساعات العمل له تأثير مباشر على فاتورة الكهرباء. خلال العام، تم العمل لمدة 2500 ساعة عمل؛ في هذا المثال، هذا هو محرك التكلفة. يتم حساب معدل محرك التكلفة عن طريق قسمة فاتورة الكهرباء البالغة 50000 دولار سنويًا على 2500 ساعة، مما يعطي معدل محرك التكلفة 20 دولارًا. بالنسبة للمنتج XYZ، تستخدم الشركة الكهرباء لمدة 10 ساعات. وتبلغ التكاليف العامة للمنتج 200 دولار، أو 20 دولارًا مضروبة في 10.

Example:

Edit	Format				
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	F5				
	А	В	С	D	
1					
2	Cost pool	\$			
3	Batch set-ups	90,000			
4	Stores/material handling	92,000			
5	Other (rent etc.)	42,000			
6	Total	224,000			
7					
8	Cost driver data	Ordinary	Deluxe		
9	Batch size	2,000	100		
10	Number of components per unit	20	30		
11					
12					

If we apply the ABC process we can see that Step 1 is complete as we know what the cost pools are.

For Step 2 we need to identify the cost driver for each cost pool. Batch set-up costs will be driven by the number of set-ups required for production: Ordinary: 20,000/2,000 = 10Deluxe units: $2,000/100 = \underline{20}$ Total set-ups: 30

Stores/material handling costs will be driven by the number of components required for production: Ordinary: (20,000 units x 20) = 400,000Deluxe: (2,000 units x 30) = 60,000Total components = 460,000Other fixed overheads will have to be absorbed on a labour hour basis because there is no information provided which would allow a better approach. We know from Example 1 that total labour hours required are 112,000. In Step 3 we need to calculate a cost per unit of cost driver. Batch set-ups: 90,000/30 = 3,000/set-upStores/material handling: \$92,000/460,000 = \$0.20/component Other overheads: 42,000/112,000 = 0.375/labour hourStep 4 then requires us to use the costs per unit of cost driver to absorb costs into each product based on how much the product uses of the driver. Batch set-ups: Ordinary: (\$3,000/2,000 units) = \$1.50/unitDeluxe: (\$3,000/100 units) = \$30/unitStore/material handling: Ordinary: $(\$0.20 \times 20 \text{ components}) = \$4/\text{unit}$ Deluxe: $(\$0.20 \times 30 \text{ components}) = \$6/\text{unit}$ Other overheads: Ordinary: $(\$0.375 \times 5 \text{ hours}) = \$1.875/\text{unit}$ Deluxe: $(\$0.375 \times 6 \text{ hours}) = \$2.25/\text{unit}$

The ABC approach to costing therefore results in the figures shown in the spreadsheet below.

Edit	Format			
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	G14			
	А	В	С	D
1				
2		Ordinary	Deluxe	
3	Marginal costs (as before)	75.00	90.00	
4	Overheads:			
5	Batch set-ups	1.50	30.00	
6	Material handling	4.00	6.00	
7	Other	1.875	2.25	
8	Total production cost	82.375	128.25	
9				
10	Comparison			
11	Full production cost (AC)	85.00	102.00	
12	Full production cost (ABC)	82.375	128.25	
13				

Check:

If production goes according to budget total costs will be $(20,000 \times \$82.375) + (2,000 \times \$128.25) = \$1,904,000$

If you look at the comparison of the full cost per unit in the spreadsheet above, you will see that the ABC approach substantially increases the cost of making a Deluxe unit. This is primarily because the Deluxe units are made in small batches. Each batch causes an expensive set-up, but that cost is then spread over all the units produced in that batch – whether few (Deluxe) or many (Ordinary). It can only be right that the effort and cost incurred in producing small batches is reflected in the cost per unit produced. There would, for example, be little point in producing Deluxe units at all if their higher selling price did not justify the higher costs incurred.

In addition to estimating more accurately the true cost of production, ABC will also give a better indication of where cost savings can be made. Remember, the title of this exam is *Performance Management*, implying that accountants should be proactive in improving performance rather than passively measuring costs. For example, it's clear that a substantial part of the cost of producing Deluxe units is set-up costs (almost 25% of the Deluxe units' total costs). Working on the principle that large cost savings are likely to be found in large cost elements, management's attention will start to focus on how this cost could be reduced.

For example, is there any reason why Deluxe units have to be produced in batches of only 100? A batch size of 200 units would dramatically reduce those set-up costs.

The traditional approach to fixed overhead absorption has the merit of being simple to calculate and apply. However, simplicity does not justify the production and use of information that might be wrong or misleading. ABC undoubtedly requires an organisation to spend time and effort investigating more fully what causes it to incur costs, and then to use that detailed information for costing purposes. But understanding the drivers of costs must be an essential part of good performance management.

Activity-based costing, under- or overallocated indirect costs (continuation of Exercise 11.13) (40 minutes)

Wolfgang Iser, the accountant of Starkuchen, wants to further examine the relative profitability of raisin cake and layered carrot cake. He questions the accuracy of the activity-based normal costing numbers. He notes that the 2015 actual manufacturing indirect cost was $\&256\ 256$. This differs sizably from the $\&210\ 800$ budgeted amount. The 2015 actual indirect costs per activity area were as follows:

Activity area	2015 actual costs
Mixing	€62 400
Cooking	83 840
Cooling	12 416
Creaming/icing	36 000
Packaging	61 600
	6256 256

Required

- 1 Calculate the under- or overallocated manufacturing indirect costs in 2015 for:
 - a Each of the five activity area indirect cost pools.
 - **b** The *aggregate* of individual activity area indirect costs.
- 2 Assume that Starkuchen allocates under- or overallocated indirect costs to individual accounts based on the allocated overhead component in that account. What are the pros and cons of using:
 - a Five separate under- or overallocated adjustments (one for each activity area)?
 - **b** One under- or overallocated adjustment for the aggregate of all activity area indirect costs?
- 3 Calculate the 2015 actual unit product cost for raisin cake and layered carrot cake using the information calculated in requirement 1a.
- 4 Comment on the implications of the product cost numbers in requirement 3 for Starkuchen's pricing decisions in 2016.

Week 15: Absorption rates, accounting procedures to adjusted over or under applied fon.

Absorption rates

Overhead absorption refers to the allocation of indirect expenses to cost objects. In this definition:

Indirect expenses are expenses that cannot be directly attributed to a specific activity or product.

Cost objects include all the sources of income for a given company, such • as products, projects, customer groups, retail outlets, and product lines, for which expenses are aggregated.

In other words, overhead absorption helps you determine your project's operating expenses.

Are the costs of direct labor included in the overhead rate?

No — absorbed overhead is only calculated for additional indirect costs affecting the project budget. Direct costs, such as direct labor hours, production costs, machine hours (in production industries), or manufacturing costs are not included in the equation.

What costs are included in overhead?

Overhead costs generally include:

Indirect costs, such as a project's share of the company's costs. •

Raw materials and resources, such as software, subscriptions, or devices. •

Any additional production process that support the projects, i.e.

consultations or external support.

Recurring or fixed overheads, such as bills or taxes. •

Overhead Absorption Formula

The formula for overhead absorption is:

Overhead absorption rate = total overhead cost ÷ total units of the allocation base

The allocation base is a measure of the activity that drives the indirect costs. These might differ depending on the type of company. Let's see how it works in a real-life example.

Overhead Absorption: Step-by-Step

The simplest calculation for overhead absorption rate includes the following steps:

Step 1: Identify Your Total Overhead Expenses

The first step in calculating the overhead absorption rate is to identify all the indirect costs or overhead costs incurred by your business, also known as company overheads. These costs may include rent, utilities, salaries, and wages of support staff, depreciation, insurance, and other expenses that are not directly related to the production of goods or services.

Then, use the cost allocation formula to determine what costs a given project should cover.

Step 2: Determine Your Allocation Base

The next step is to determine the allocation base, or the factor that will be used to allocate overhead costs to the products or services your business produces.

The allocation base should be a measure of the activity that drives the overhead costs. For example, if your business incurs overhead costs based on the number of direct labor hours worked, then the allocation base could be the total number of labor hours worked by all employees.

However, there is more than one method of calculating overhead absorption rates — we will describe them all further later in the article.

Step 3: Calculate Your Overhead Absorption Rate

To calculate the overhead absorption rate, divide the total overhead costs per unit by the allocation base. The general formula for overhead absorption rate is:

Overhead absorption rate = actual overhead costs / allocation base Step 4: Apply the Overhead Absorption Rate

Once you have calculated the overhead absorption rate, you can apply it to the total cost of goods or services produced by your business to see how they affect the costs and, as a result, the profitability of your project.

Methods of Calculating Overhead Absorption Rate Production Unit

For some product-based companies, it is common to calculate the overhead absorption rate based on the number of implementations of the product the company expects to complete in a given period. In that case, the overhead absorption formula is:

Overhead absorption rate = total overhead cost ÷ number of implementations completed

This formula can also be used in other industries — the only adjustment needed is to replace the number of implementations with the number of other produced units.

However, in service-dominated industries, produced units are rarely used for calculating overhead absorption, as they do not reflect the amount of work in the project. Percentage and hourly rate methods are much better at it.

Percentage Methods

Fortunately for professional services companies, percentage methods for calculating overhead absorption offer much more accurate insights into the costs of operating expenses and their influence on project costs.

There are three ways to calculate overhead absorption in the professional services industry using these techniques:

Percentage of direct labor (or fixed costs in general) .1

Percentage of prime cost .2

Percentage of direct wages .3

In this method, the overhead absorption rate is expressed as a ratio of actual or expected overhead costs to the actual or expected costs of wages needed to complete the project, multiplied by 100.

Overhead absorption rate (%) = (actual or expected production overhead costs \div actual or expected cost of wages to produce the product) x 100 Importantly, using direct wages as a base for calculations ensures that the costs are allocated propertionally, as larger projects need to accur a larger fraction of

are allocated proportionally, as larger projects need to cover a larger fraction of overheads.

Percentage of Prime Costs: Prime Cost Method

The prime cost method is very similar to the one that uses only direct wages to allocate costs. However, in this case, costs of work are not the only ones included in the calculation; instead, the base for the calculations is direct labor cost with costs of direct materials and additional resources, such as equipment, subscriptions, or additional programs, also known as prime costs.

Therefore, the formula for calculating the overhead absorption rate is as follows:

Overhead absorption rate = (budgeted or actual overhead \div prime cost) x 100

Hourly Rate Methods

Another popular method of calculating overhead absorption rate in the professional services industry is using rates or costs of the hours to establish a project's share of the operational costs. Here are two methods you can use to do this.

Direct Labor Hours

Calculating overhead absorption rate per labor hour is the simplest way to establish overhead costs. This method is also essential for calculating employee profitability.

In this method, however, the overhead absorption rate is calculated per 1 worked hour in the project using the formula:

Direct labor cost per hour rate = overhead for the specific period (indirect cost) \div direct labor hours for the same period

For example, if a project is expected to take 500 hours in a given month and is supposed to cover \$1,000 of overheads, its overhead absorption rate is \$2 per hour.

Costs Per Work Expenses

Naturally, the previous formula can also be adapted to show the overhead absorption rate as a percentage. In this case, the formula is:

Direct labor hour rate = (overhead for the specific period \div the costs of work for the specific period) * 100

Week 16: Marketing and managerial costs, analysis, procedures ..

Marketing Cost Analysis

In the realm of product management and operations, a critical aspect that often determines the success or failure of a product is the marketing cost analysis. This comprehensive glossary article will delve into the intricate details of marketing cost analysis, its importance in product management and operations, and how it can be effectively utilized.

Marketing cost analysis is a <u>strategic tool used by businesses</u> to understand the cost-effectiveness of their marketing activities. It involves the process of identifying, classifying, and analyzing various costs associated with marketing a product or service. This analysis is crucial in making informed decisions about marketing strategies, budget allocation, and overall business operations. **Marketing Cost Analysis: An Overview**

Marketing cost analysis, at its core, is a <u>systematic approach to understanding</u> the costs associated with marketing efforts. It involves the process of breaking down and categorizing all the costs incurred in marketing a product or service, from advertising and promotions to market research and customer service. The objective of marketing cost analysis is to provide a clear picture of where the marketing budget is being spent and how effectively it is being utilized. By doing so, it helps businesses identify areas of inefficiency, opportunities for cost reduction, and <u>strategies for improving marketing ROI</u> (Return on Investment).

Components of Marketing Cost Analysis

The primary components of marketing cost analysis include direct costs, indirect costs, and overhead costs. Direct costs are those that can be directly attributed to marketing activities, such as advertising expenses, promotional materials, and sales team salaries. Indirect costs, on the other hand, are not directly linked to marketing activities but are necessary for their execution, such as administrative expenses and utilities.

Overhead costs are the general costs of running a business that are allocated to marketing activities, such as rent, utilities, and administrative salaries. <u>These</u> costs are often distributed across various departments based on their proportionate use of resources.

Importance of Marketing Cost Analysis in Product Management

In the context of product management, marketing cost analysis is a vital tool for strategic decision-making. It provides valuable insights into the costeffectiveness of various marketing strategies and tactics, which can inform decisions about product positioning, pricing, and distribution.

By understanding the costs associated with different marketing activities, product managers can make informed decisions about where to allocate

resources to maximize the <u>product's market reach and profitability</u>. Moreover, it allows them to identify and eliminate inefficiencies in the marketing process, thereby reducing costs and improving the product's overall profitability.

Role in Product Pricing

Marketing cost analysis plays a crucial role in product pricing. By understanding the costs associated with marketing a product, product managers can determine the optimal price point that will cover these costs and yield a satisfactory profit margin.

Furthermore, it allows product managers to assess the impact of different pricing strategies on the product's marketability and profitability. For instance, if the marketing cost analysis reveals that a significant portion of the marketing budget is being spent on advertising, it may be more cost-effective to reduce advertising expenses and lower the product's price to attract more customers.

Importance of Marketing Cost Analysis in Operations

From an operations perspective, marketing cost analysis is equally important. It provides insights into the operational efficiency of the marketing department and its impact on the overall business operations.

By analyzing the costs associated with different marketing activities, operations managers can identify areas of inefficiency and implement measures to improve operational efficiency. Moreover, it allows them to assess the effectiveness of their resource allocation and make necessary adjustments to optimize operational performance.

Role in Budget Allocation

One of the key roles of marketing cost analysis in operations is in budget allocation. By understanding where the marketing budget is being spent and how effectively it is being utilized, operations managers can make informed decisions about where to allocate resources to maximize operational efficiency and profitability.

For instance, if the marketing cost analysis reveals that a significant portion of the budget is being spent on ineffective marketing activities, operations managers can redirect these resources to more productive areas, thereby improving operational efficiency and reducing costs.

How to Conduct a Marketing Cost Analysis

Conducting a marketing cost analysis involves a systematic process of identifying, categorizing, and analyzing all the costs associated with marketing activities. The first step is to identify all the costs related to marketing, including direct costs, indirect costs, and overhead costs.

Once all the costs have been identified, they should be categorized based on their nature and relevance to marketing activities. This categorization is crucial in understanding where the marketing budget is being spent and how effectively it is being utilized.

Week 17: Absorption Costing theory, procedures, animadversion Absorption Costing Theory نظرية التكاليف الممتصة (الاجمالية)

1. Absorption Costing Concept (الاجمالية) مفهوم التكلفة الممتصة (الاجمالية)

Absorption costing is the basis of all financial accounting statement, sometime it's known as total (full) costing. Using absorption costing, all costs (direct, indirect, variable, and fixed) are absorbed into production. The idea in this method does not distinguish between different costs, production of the period must absorbed all cost, and the functional classification is done. Ilizabi I cost, and the functional classification is done. Ilizabi I cost, and the functional classification is done. (الكاملة). باستخدام تكلفة الامتصاص ، يتم استيعاب جميع التكاليف (المباشرة و غير المباشرة و المتغيرة والثابتة) في الإنتاج. الفكرة في هذه الطريقة لا تميز بين التكاليف المختلفة ، يجب أن يمتص إنتاج الفترة كل التكاليف ، ويتم التصنيف الوظيفي.

2. Units of sales and Production وحدات البيع والإنتاج

For the period, you must know units of sales, production and inventories as:

Beginning inventory	XX
Production of the period	XX
Ending inventory	(XX)
Sales units'	XXX

ايراد المبيعات 3. Sales Revenue

Sales revenue calculate by this equation

Sales revenue = Sales Units * Sales price

4. Production Cost كلفة الانتاج

The production units of the period must know and the production of the last year also, if it is important.

Total production cost = production units * total cost per unit<u>or</u>

Production units * direct material per unit = XX

Production units * direct labor per unit = XX

Production units * variable F.O.H per unit = XX

Production units * fixed F.O.H per unit = XX

Total production cost X XX 5. Total cost per unit كلفة الوحدة الواحدة الاجمالية Total cost per unit is all cost for the product in the period as:

Direct material XX Direct labor XX Variable F.O.H XX Fixed F.O.H XX

Total cost per unit X XX

6. Inventories Valuation تقييم المخزون

A. Beginning inventory: مخزون اول المدة

Beginning inventory, the units not sale in the last year must evaluation with the total cost of the last year. As:

Beginning inventory cost = Beginning inventory units * total cost per unit for last year.

B. Ending inventory محزون اخر المدة

Ending inventory the units not sale in the end of this year (assume it is from the production of this year)

Must valuation with the total cost of this year:

Ending inventory cost = Ending inventory units * total cost per unit for this year.

تكاليف التسويق الإجمالية 7. Total marking costs

Total marking costs, the cost related with sales calculate as:

Total marking costs = Variable marking costs + Fixed marking costs.

Note: Variable marking costs = Sales units * Variable marking costs per unit.

8. Total Cost of Goods Sold تكلفة البضاعة المباعة الاجمالية

When you added total cost of unit sold (manufacturing) to the total market cost you reach total cost of goods sold.

Total Cost of goods sold = total cost of unit sold (manufacturing) + total marketing cost.

<u>Note:</u> Total cost of unit sold (manufacturing) = Total cost of production + Total cost beginning inventory - Total cost of ending inventory.

مجمل الربح Gross Profit 9. Gross

Gross profit is the difference between total cost of goods sold cost and sales revenue:

Gross profit = sales revenue - total cost of goods sold

صافي الربح 10. Net Profit

It is the result after deduct the managerial cost from Gross profit. Net Profit = Gross profit - Managerial cost.

Example 1: The cost accountant of Ahmad Company has established the following data for the year 2005.

- 1- Sales price per unit 250 I.D.
- 2- Operating units for year

Production	500000 units
Beginning inventory	20000 units

Ending inventory 40000 un 3- Production for the last year 90% of	its Sthis year.			
4- These data about the cost has available. (I.D)				
Direct material Direct labor Variable Factory overhead Variable Marketing cost Fixed Factory overhead \$ 1 Fixed Marketing cost Administrative cost Calculate 1- Sales revenue 2- Total cost of production 3- Total cost of production 3- Total cost of inventories 4- Total marketing cost 5- Total cost of goods sold 6- Gross profit 7- Net Profit	\$ 50 \$ 40 \$ 35 \$10 750000 \$ 750000 \$ 500000			
Solution1- Sales Revenue = Sales Units * Sales P $= 480000 * 250 = 120$ (I.D)Note: Sales units Calculate as:Beginning inventory20000Production500000Ending inventory(40000)	rice 000000			
Sales Units 480000				
2- Total cost of production year 2005: Direct material 50 * 500000 Direct labor 40 * 500000 Variable Factory overhead 35 * 500000 Fixed Factory overhead Total cost of production Or 50 + 40 + 35 = 125 Variable cost per units	= 25000000 = 2000000 = 1750000 = 1750000 = 64250000 S.			
(125 * 500000) = 62500000 (I.D) variable 62500000 + 1750000 = 64250000 (I.D) T	(125 + 300000) = 02300000 (I.D) variable cost of production 62500000 + 1750000 = 64250000 (I.D) Total cost of production			

3- Total cost of inventory:

A- Total cost of beginning inventory = beginning inventory units* Total cost per units (last year).

450000

= 20000 * 128.889 = 2577780 (I.D).

Note: Total cost of per unit year 2004:

<u>Fixed F.O.H</u> = 1750000 = 3.889 (I.D).

Production of the last year

3.889 + 50 + 40 + 35 = 128.889 (I.D).

B- Total cost of Ending inventory = Ending inventory units * Total cost of per units (this year).

= 40000 * 128.5 = 5140000 (I.D).

Note: Total cost of per unit year 2005:

<u>Fixed F.O.H</u> = 1750000 = 3.5 (I.D).

Production of this year 500000

3.5 + 50 + 40 + 35 = 128.5 (I.D).

4- Total Marketing Cost = Variable Marketing Cost + Fixed Marketing Cost. = (10*480000) + 750000 = 5550000 (I.D).

5- Total cost of goods sold = total cost of unit sales (manufacturing) + Total marketing cost.

61687780 + 5550000 = 67237780 (I.D).

<u>Note</u>: Total cost of unit sales (manufacturing) = Total cost of production + Total cost of beginning inventory - Total cost of Ending inventory.

= 64250000 + 2577780 - 5140000 = 61687780 (I.D).

6- Gross profit = Sales Revenue - Total cost of good sales.

= 120000000 - 67237780 = 52762220 (I.D).

7- Net Profit = Gross profit – managerial cost.

52762220 - 500000 = 52262220 (I.D).

Week 18: Financial statement in absorption costing method.

Income Statement under Absorption Costing

Income Statement is a report explains all activities of the company for the period from 1-1/31-12 the result of the Statement must be net profit or net loss. The form of the Statement as below:

Income Statement of (X) company For the period from 1-1/31-12

Sales Revenue			Xx
Cost of goods sold			
Direct material	Xx		
Direct labor	XX		
Variable F.O.H	XX		
Fixed F.O.H	XX	Xxx	
Total cost of production		Xx	
Total cost of beginning inventory		Xx	
Total cost of unit available for sale		<u>(Xx)</u>	
Total cost of ending inventory		Xx	
Total cost of unit sold (manufacturing)		XX	
Total marketing cost			
Total cost of goods sold			(Xx)
Gross profit			Xx
Managerial cost			(Xx)
Net Profit			Xx

Example:- Prepare income statement from the information in ex: 1 using absorption costing.

Solution

Income statement for Ahmad Company 1-1/ 31-12/ 2005

Sales Revenue			12000000
Total cost of goods sold			
Direct material	25000000		
Direct labor	20000000		
Variable F.O.H	17500000		
Fixed F.O.H	<u>1750000</u>		
Total cost of production		64250000	
Total cost of beginning inventory		<u>2577780</u>	
Total cost of unit available for sale		66827780	
Total cost of ending inventory		<u>(5140000)</u>	
Total cost of unit sold (manufacturing)		61687780	
Total marketing cost		<u>5550000</u>	
Total cost of goods sold			<u>(67237780)</u>
Gross profit			52762220
Managerial cost			<u>(500000)</u>
Net Profit			52262220

Week 19: Variable costing Theory , procedures & comments . Variable Costing Theory نظرية التكاليف المتغيرة

Variable costing makes a distinction between product costs and period costs. Product costs consist only of prime costs for direct material and direct labor plus variable factory overhead. These are the costs assigned to inventories (work in process and finished goods) and cost of goods sold. Fixed factory overhead is included with other period fixed expenses, such as marketing and administration expenses.

تميز التكلفة المتغيرة بين تكاليف المنتج وتكاليف الفترة. تتكون تكاليف المنتج فقط من التكاليف الأولية للمواد المباشرة والعمالة المباشرة بالإضافة إلى النفقات العامة المتغيرة للمصنع. هذه هي التكاليف المخصصة للمخزون (الانتاج تحت التشغيل والسلع التامة الصنع) وتكلفة البضائع المباعة. يتم تضمين النفقات العامة الثابتة للمصنع مع المصاريف الثابتة الأخرى للفترة ، مثل مصاريف التسويق والإدارة.

2. Units of Sales and Production:- The same in absorption costing.

3. Sales revenue:- The same in absorption.

4. Production Cost:- The production units of the period must be known and the production of the last year also, if it is important.

Variable cost of production calculates as:

Variable production cost = production units * Variable cost per units.

<u>Or:</u>

Production units * Direct material per units =	XX
Production units * Direct labor per units =	XX
Production units * Variable F.O.H per units =	XX

Variable production cost

XXX

5. Variable cost per unit

Variable cost per unit is the cost for product in the period as:

Direct material	XX
Direct labor	XX
Variable F.O.H	XX

Variable cost per unit xxx

6. Inventories Valuation

A-Beginning inventory: Beginning inventory, the units not sale in the last period must evaluation with the variable cost of the last period as:

Beginning inventory cost = Beginning inventory units* Variable cost per unit for the last period.

B-Ending inventory:- Ending inventory the units not sale in the end of this period (assume it is from the production of this period) must valuation with the variable costs of this period.

Ending inventory cost = Ending inventory units * Variable cost per units for this period.

Note: Variable cost per unit is satiable from period to period.

7. Variable Marketing Cost

Variable marketing cost, the cost related with sales calculates as:

Variable marketing cost = sales units * Variable marketing cost per unit. 8. Variable Cost of Goods Sold

When you added variable cost of unit sold (manufacturing) to the variable marketing cost, you can reach variable cost of goods sold.

Variable cost of goods sold = Variable cost of unit sold (manufacturing) + Variable marketing cost.

<u>Note:</u> Variable cost of unit sold (manufacturing) = variable cost of production + variable cost of beginning inventory - variable cost of ending inventory.

9. Contribution Margin :- Contribution Margin is the different between variable cost of goods sold and sales revenue.

Contribution Margin = **Sales revenue - Variable cost of goods sold. 10. Net Profit:-** It is the result after deduct all fixed costs (factory overhead, marketing and administration) from Contribution Margin.

Example 2:- The cost accountant of (Y) Company has established the following data for the year 2001: 1- Operating units for the year: Beginning inventory 40000 250000 Production Ending inventory 20000 2- Production for the last year was 200000 units. 3- These data about the cost has available: Direct material 10 Direct labor 15 Variable F.O.H 10 Fixed F.O.H 5 5 Variable marketing cost Fixed marketing cost 750000 Administrative cost 500000 4- Sales price per unit is 80 (I.D) Calculate 1-Sales revenue 2- Variable cost of production. 3- Variable cost of inventories. 4- Variable marketing cost. 5- Variable cost of goods sold.
6- Contribution margin. 7- Net Profit. **Solution** 1- Sales Revenue = Sales Units * Sales Price = 270000 * 80 = 21600000 (I.D). Note: Sales units Calculate as: Beginning inventory 40000 Production 250000 Ending inventory (20000)Sales Units 270000 2- Variable cost of production 10 * 250000 =Direct material 2500000 Direct labor 15 * 250000 =3750000 10 *250000 = Variable F.O.H 2500000 _____ _____ Variable cost of production 8750000 **0r:** (10+15+10) * 250000 = 8750000 (I.D). 3- Variable cost of inventories: A- Variable cost of beginning inventory = Beginning inventory units * Variable cost per unit. 40000 * 35 =1400000 (I.D). B- Variable cost of ending inventory = Ending inventory units * Variable cost per unit. 20000 * 35 =700000 (I.D). 4- Variable marketing cost Variable marketing cost = Sales units * Variable marketing cost. 270000 * 5 = 1350000 (I.D). 5- Variable cost of goods sold = Variable cost of unit sold (manufacturing) +Variable marketing cost. 9450000 + 1350000 = 10800000 (I.D). Note: Variable cost of unit sold (manufacturing) = Variable cost of production + Variable cost of beginning inventory - Variable cost of ending inventory. = 8750000 + 1400000 - 700000 = 9450000 (I.D). 6- Contribution margin cost. Contribution Margin = Sales revenue - Variable cost of goods sold.

21600000 - 10800000 = 10800000 (I.D).

7- Net Profit

Net Profit = Contribution Margin – all fixed costs (F.O.H + Marketing cost + Administrative cost). 10800000 - (1250000 + 750000 + 500000) = 8300000 (I.D). <u>Note :-</u> Fixed F.O.H per unit calculated as: Fixed F.O.H per unit = <u>fixed F.O.H</u> Production $X = \underline{1250000}$ (I.D).= 5 (I.D)

250000

Week 20: Financial statement in variable costing method. Income Statement under Variable Costing

Income Statement is a report explains all activities of the company for the period from 1-1/31-12 the result of this Statement must be net profit or net loss. The form of this Statement as below:

Income Statement of (x) company for the period 1-1/31-12 200x

Data			
Sales Revenue			Xxx
Variable cost of goods sold			
Direct material	XX		
Direct labor	XX		
Variable F.O.H	XX		
Variable cost of production		XX	
Variable cost of beginning inventory		XX	
Variable cost of unit available for sale		XXX	
Variable cost of ending inventory		(xx)	
Variable cost of unit sold manufacturing		XX	
Variable marketing cost		XX	
Variable cost of goods sold			(xxx)
Contribution Margin			Xx
Fixed costs			
F.O.H		XX	
Marketing		XX	
Administrative		XX	
Total fixed costs			(XXX)
Net profit			Xx

Example 3:- Prepare income statement from the information in ex.2 using variable costing.

<u>Solution</u>

Income Statement of (Y) company for the period 1-1/31-12 2001

Data			
Sales Revenue			21600000
Variable cost of goods sold			
Direct material	2500000		
Direct labor	3750000		
Variable F.O.H	2500000		
Variable cost of production		8750000	
Variable cost of beginning inventory		14000000	
Variable cost of unit available for sale		10150000	
Variable cost of ending inventory		(700000)	
Variable cost of unit sold		9450000	
manufacturing			
Variable marketing cost		1350000	
Variable cost of goods sold			(10800000)
Contribution Margin			10800000
Fixed costs			
F.O.H		1250000	
Marketing		750000	
Administrative		500000	
Total fixed costs			(250000)
Net profit			8300000

Week 21: Comparing with total & variable costing theories and their effects on profits..

Absorption costing and variable costing are methods used in accounting to value companies' work in progress and inventory. <u>Absorption costing</u> includes all the costs associated with manufacturing a product. Variable costing includes the costs directly incurred in production and none of the fixed costs. Absorption costing is required for reporting purposes under the Financial Accounting Standards Board's <u>Generally Accepted Accounting Principles</u> (GAAP).

Absorption versus variable costing will only be a factor for companies that expense <u>costs of goods sold (COGS)</u> on their income statements. Any company can use both methods for various reasons but public companies are required to use absorption costing due to their GAAP accounting obligations.

- Absorption costing includes all the direct costs associated with manufacturing a product.
- Variable costing can exclude some direct fixed costs.
- Absorption costing entails allocating fixed overhead costs to all units produced for an accounting period.
- Variable costing includes all the variable direct costs in COGS but it excludes direct, fixed overhead costs.
- Variable costing can provide a clearer picture of per-unit cost and inventory value because it excludes the fixed overhead cost.

Example A:- The	Cup Company produced 10000 units of the product during			
April and May of 2002. During this period, 8000 of these units were sold at				
150 (I.D) per unit.	The following represent the operations of these two months			
Direct material	20 per unit			
Direct labor	10 per unit			
Fixed overhead	60% of total factory overhead			
For the two- month	n period, total expenses were as follows: (I.D)			
Heat	20000			
Light	20000			
Fuel	20000			
Depreciation	30000			
Maintenance	15000			
Rent	50000			
Insurance	15000			
Indirect labor	20000			
Repairs	25000			
Taxes	25000			
Marketing and adm	ninistrative expense 35000, 15000			
Prepare income sta	atement using: (1) absorption costing (2) variable costing.			
Solution				
1- Total factory ov	rerhead			
Heat	20000			
Light	20000			
Fuel	20000			
Depreciation	30000			
Maintenance	15000			
Rent	50000			
Insurance	15000			
Indirect labor	20000			
Repairs	25000			
Taxes	25000			
Total	240000			

Fixed F.O.H = 240000 * 60% = 144000 (I.D). Variable F.O.H = 240000 * 40% = 96000 (I.D). 2- Sales Revenue = 8000 * 150 = 12000003- Fixed cost per unit = 540000 = 54

4- Total cost end Inv. = 2000 * 54 = 108000 (I.D).

5- Variable cost end Inv. = 2000 * 39.6 = 79200

Income Statement of (CAP) Company

For the period of April and May 2002 Absorption costing

Data			
Sales Revenue			1200000
cost of goods sold			
Direct material 20*10000	200000		
Direct labor 10*10000	100000		
Variable F.O.H	96000		
Fixed F.O.H	144000		
Total cost of production		540000	
Total cost of beginning inventory		0	
Total cost of unit available for sale		540000	
Total cost of ending inventory		(108000)	
Total cost of unit sold manufacturing		432000	
Total marketing cost		35000	
Total cost of good sold			467000
Gross profit			733000
Administrative cost			(15000)
Net profit			718000

Income Statement of (Y) company for the period April and May 2002 variable costing

Data			
Sales Revenue			1200000
cost of goods sold			
Direct material	200000		
Direct labor	100000		
Variable F.O.H	96000		
Variable cost of production		396000	
Variable cost of beginning		0	
inventory			
Variable cost of unit a variable for		396000	
sale			
Variable cost of ending inventory		(79200)	

Variable cost of unit sold	316800	
Variable marketing cost	0	
Variable cost of goods sold		(316800)
Contribution Margin		883200
Fixed costs		
Factory overhead	144000	
Marketing	35000	
Administrative	15000	
		(194000)
Net profit		689200

Example B-: The cost data for Noor Corporation are as shown below:

	2001	<u>2000</u>
Sales (units)	125000	95000
Selling price	60	50
Beginning inventory	15000	10000
Ending inventory	10000	15000
Production	120000	100000
Direct material	10	10
Direct labor	15	15
Variable F.O.H	5	5
Fixed F.O.H	2	2.4
Market (70% variable)	30000	20000
Administrative expenses	20000	10000

Required:-

1- prepare an income statement for 2001 using absorption costing.

2- prepare an income statement for 2001 using variable costing.

3- prepare an income statement for 2000 using variable costing.

Solution (1)

1-Total cost of production:(10+15+5+2) * 120000 = 3840000 (I.D).

2-Total cost of beginning inventory

(10+15+5+2.4) * 15000 = 486000 (I.D).

3- Total cost of ending inventory

```
(10+15+5+2) * 10000 = 320000 (I.D).
```

4-variable market cost

30000*70% = 21000 (I.D).

5-Fixed marketing cost

30000*30% = 9000 (I.D).

6-Sales Revenue

125000*60 = 7500000 (I.D).

7- Variable cost per unit

(10+15+5) = 30 (I.D).

8- Variable cost of beginning inventory= 30*15000 = 450000 (I.D). Income Statement for Noor Corporation

	I I I I I I I I I I I I I I I I I I I	0	
Data			
Sales Revenue			7500000
Cost of goods sold			
Direct material	1200000		
Direct labor	1800000		
Variable F.O.H	600000		
Fixed F.O.H	24000		
Total cost of production		3840000	
Total cost of beginning inventory		486000	
Total cost of unit available for sale		4326000	
Total cost of ending inventory		(320000)	
Total cost of unit sold (manufacturing)		4006000	
Total marketing cost		30000	
Total cost of goods sold			4036000
Gross profit			3464000
Administrative cost			(20000)
Net profit			3444000

For year 2001 Absorption costing

Solution (2)

Income Statement for Noor Corporation For year 2001 variable costing

Data		Ī	
Sales Revenue			7500000
cost of goods sold			
Direct material	1200000		
Direct labor	1800000		
Variable F.O.H	600000		
Variable cost of production		3600000	
Variable cost of beginning inventory		450000	
Variable cost of unit available for sale		4050000	

Variable cost of ending inventory		(300000)	
Variable cost of unit sold		3750000	
(manufacturing)			
Variable marketing cost		21000	
Variable cost of goods sold			(37710000)
Contribution Margin			3729000
Fixed costs			
Factory overhead	240000		
Marketing	9000		
Administrative	20000		269000
Net profit			3460000

Solution: (3)

Year 2000

Sales Revenue = 95000 * 50 = 4750000 (I.D).

Variable cost per unit = 10+15+5 = 30 (I.D).

Variable cost of production = 30*100000 = 3000000 (I.D).

Variable cost of beginning inventory = 30*10000 = 300000(I.D).

Variable cost of ending inventory = 30*15000 = 450000 (I.D).

Variable market cost = 20000 * 70% = 14000 (I.D).

Fixed marketing cost = 20000 * 30% = 6000 (I.D).

Total fixed factory overhead =100000 * 2.4 = 240000 (I.D).

Income Statement for Noor Corporation

For year 2000 Variable costing

Data			
Sales Revenue			4750000
cost of goods sold			
Direct material	1000000		
Direct labor	1500000		
Variable F.O.H	500000		
Variable cost of production		3000000	
Variable cost of beginning inventory		300000	
Variable cost of unit available for sale		3300000	
Variable cost of ending inventory		(450000)	
Variable cost of unit sold		2850000	
(manufacturing)			
Variable marketing cost		14000	
Variable cost of goods sold			(2864000)
Contribution Margin			1886000
Fixed costs			
Factory overhead	240000		
Marketing	6000		

Administrative	10000	(256000)
Net profit		1630000

Exercises

Exercise 1:- **Income Statement: Variable Costing vs. absorption costing.** The following data summarized the operations for the Ruff Skin Company for the current year.

the current year.	
Sales, 40 units @ \$100	\$4,000
Production costs, 60 units	
Direct material 60 @ \$20	1200
Direct labor, $60 (a)$ \$10	600
Variable factory overhead, 60@ \$6	360
Fixed factory overhead, 60@ \$4	240
Marketing expenses	
Variable, 40 @ \$5	200
Fixed, 40@ @\$3	120
Administration expenses 150	

Required: Prepare income statement using :

- a. absorption costing
- b. variable costing

Exercise 2:- Inventory Cost - Variable vs. Absorption Costing.

As part of its investigation regarding the possible adoption of variable costing, the management of the Anderson Company asks the controller what effect the adoption of such procedures would have on inventories. In developing the answer to this question the following figures, representing operations for the past year, are used:

Units produced-50,000, of which 15,000 were not sold

Direct material\$160,000

Factory overhead:

Fixed expenses 75,000

Variable expenses......150,000

Required:

(1) the cost to be assigned the 15,000 units in inventory using Absorption costing.

2) the cost to be assigned the 15,000 units in inventory using Variable costing.

Exercise 3: -Income Statement – full vs. Variable Costing.

The Fleming Corporation produced 24,000 units of product during the first quarter of 19-. 20,000 were sold @ \$20 per unit. Cost of this production was: Direct Material\$60,000

Direct labor60,000

Factory overhead:

Fixed cost96,000

Marketing and administration expenses for the quarter total \$50,000; all are fixed expense evenly distributed .

Required:

- (1) An income statement using full costing.
- (2) An income statement using variable costing.

Exercise 4:- Absorption vs. Variable Costing. Income Statement.

The following data pertain to the operations of the McCoy Manufactory Company for the year 2019:

Sales in units: 75,000

Finished goods inventory, January 1,19A: 12,000 units

Finished goods inventory, December 31, 19A: 17,000 units

Units sales price : \$10

Manufactory costs:

Variable costs per production: \$4

Fixed factory overhead: \$160,000

Marketing and administrative expenses:

Variable costs per unit of sales: \$1

Fixed marketing and administrative expenses: \$150,000

Required:

- 1) An income statement for 19A under absorption cost concept.
- 2) An income statement for 19A under the variable concept.
- 3) An accounting for the difference in profit under the two concepts.

Week 22: Job order costing system, job order cards the document circle

Job order costing

In job order industries, production work is done against order From customers each job work need special treatment and can be clearly distinguished from other jobs. for examples of job Order industries are printing press, construction of building, Bridges roads, ship building.

في الصناعات التي تستخدم الاوامر الانتاجية، يتم العمل (الانتاج) مقابل لطلب العملاء ، كل امر انتاجي يحتاج إلى معاملة خاصة ويمكن تمييزه بوضوح عن الاوامر الأخرى. للحصول على أمثلة عن صناعات الاوامر الانتاجية مثل الطباعة, واعمال البناء ، والطرق والجسور ، وبناء السفن.

Objectives of job

The following are costing the main objectives of job costing 1-Cost of each job is ascertained separately . this helps in Findin^g . out the profit or loss on each job

2- It enables management to detect those job which are more Profitable and those which are unprofitable .

- 3-It provides a basis for determining the cost of similar jobs under taken in future.
- 4-It helps management in controlling cost, be comparing the Actual cost with the estimated cost.

أهداف الاوامر الانتاجية فيما يلي الاهداف الرئيسية للأوامر الانتاجية 1 - يتم التأكد من تكلفة كل امر على حدة وهذا يساعد في إيجاد الربح أو الخسارة لكل 2 - تمكن الإدارة من الكشف عن الاوامر المربحة اكثر والغير مربحة. 3 - يوفر أساسًا لتحديد تكلفة الاوامر المماثلة التي يتم اتخاذها في المستقبل. 4 - يساعد الإدارة في التحكم في التكلفة ومقارنة التكلفة الفعلية بالتكلفة المقدرة.

	Job co The fo 1-job r 2-Prod 3-Job	sting pro ollowing number luction or cost shee	بةsteps a steps a رقم الأمر der. جي لانتاجي	إمر الانتاجي te taken الامر الانتا. رقة الامر ا	ات الاو in jo وا Job	اجراء bs costin cost shee	l g. t			
	Custome Date cos	er mmencemei	nt					job No date of	comp	letion
Materi	al cost		Labor c	ost			factor	y over h	ead	
Date	Material	Amount I.D	Date	Hours	Rot	Amount I.D	dep	hours	Rat	am ant
	Total									

cost of job order

1-Direct cost : it means

a-Direct materials b- Direct wages

2-Indirect cost : it means

a- Indirect materials b-Indirect wages c-Indirect expenses.

The direct cost and indirect cost in all cost centers are total. When the jobs are completed, the cost is transferred to cost of sales account. the total cost of jobs completed during each period is set against the sales to determine the profit or loss for the period.

التكلفة المباشرة والتكلفة غير المباشرة في جميع مراكز التكلفة إجمالية. عند اكتمال الاوامر ، يتم تحويل التكلفة إلى حساب تكلفة المبيعات. يتم تعيين التكلفة الإجمالية للأوامر المنجزة خلال كل فترة مقابل المبيعات لتحديد الربح أو الخسارة للفترة

The Journal entries :

The Journal entries for direct material, direct labor and factory overhead are given below :

A- direct material :

Work in progress control *** Cash or debtors *** To record purchase of material

B- Material witch received from store room

Work in progress control***Stores control***

C - Material sends back to storeroom : Stores control *** Work in progress control ***

D - Direct labor :

Work in progress control ***

Wages control ***

E-	factory	overhead	:
----	---------	----------	---

Factory overhead control	***
in direct material	***
indirect labor	***
indirect expense	***
F- To record applied overhead to	job order :
Work in progress	***
Factory overhead applie	ed ****

G- overhead variance :

Variance = Actual factory overhead _ predetermined overhead

Positive variance :

Factory overhead control ***	
Variance factory overhead	***

Negative variance :

Variance factory overhead	***
Factory overhead control	***

Example 1:

From the following in formation prepare job cost sheet

Particulars	job No 1	job No2	Amount
Direct materials	2000	1000	3000
Direct wages	1500	2250	3750
Machine hour	500	750	

The overhead loaded by I.D .2 for machine hour.

Solution

Job cost sheet

Particulars	Job No 1	Job No 2	Amount LD
Direct material	2000	1000	3000
Direct wages	1500	2250	3750
Prime cost	3500	3250	6750
Supposed over head	1000	1500	2500
Supposed cost	4500	4750	9250
			1

Example 2

From the following information prepare job cost sheet for the year ended 2015

Particulars	job No 1	job No 2	job No	Amoun
Direct materials	3000	1500	4500	9000
Direct wages	2500	3000	5500	11000
Machine hour	1250	1750	2000	

Solution

The overhead cost loaded by LD 2 for machine hour

Job cost sheet

Particulars	Job No 1	Job No 2	Job No3	Amount
Direct materials	3000	1500	4500	9000
Direct wages	2500	3000	5500	11000
Prime cost	5500	4500	10000	20000
Supposed overhead	2500	3500	4000	10000

11	8000	8000	14000	30000
Example 3 From the following i ended 2007	in formation	prepare job co	ost sheet for t	he year
Particular job Direct materials The overhead cost la Solusion	0 No 1 job 2000 100 aded by 150%	No 2 job 00 30 6 from direct 1	b No 3 amou 00 6000 materials	unt)
Direct materials	2000	1000	3000	6000
Direct wages	1500	2000	4000	7500
Prime cost Supposed overhea	ad 3500	3000 1500	7000 4500	13500 9000
		4500	11500	22500

Week 23: Factory overhead , rules of estimation and allocation over the production orders , allocate rate for the center level and order level.

Application of manufacturing overhead:

Manufacturing overhead is applied to production by multiplying actual direct labor or machine hours worked during the year and <u>predetermined overhead</u> <u>rate</u> computed at the beginning of the year. It is shown as follows:

Predetermined overhead rate = Estimated manufacturing overhead cost Estimated total units in the allocation base

Example: The following data for the month of March(1), the first in March was up (1) under operation at a cost of \$ 2,000 direct materials 3000\$ wages directly (2)during the month of March began operating on the order and at all costs during the month of March as follows:

	Itis 1,	2
Direct materials	\$4000	\$ 5000
Wages directly	\$ 8000	\$ 6000

The wage rate at 2/1000 and the rate of loading additional costs of 3/1000 Factory overhead include (40 % Electric expense , 50 % insurance of machine , 10% rent of plant)

Required:- 1- preparation cost for cards is 1 and 2 is for the month of March? 2- record journal entries, If you know that actual F .O.H were 21000 and the order save been their finished and taken to warehouses.

Date	Materials	wages	Factory overhead
Balance	2000	3000	-
During the month	4000	8000	12000
Total	6000	11000	12000

Solation :- work cost card 1

\$ 8000 / \$ h 2 = 4000 hour

4000 hour * \$ h 3 = \$ 12000 factory overhead

Cost Summary

Materials	6000
Wages	11000
Factory overhead	12000
Total	29000

work cost card 2

Date	Materials	wages	Factory overhead
During the month	5000	6000	9000
Total	5000	6000	9000

\$6000 / \$ h 2 = 3000 hour 3000 hour * \$ h 3 = \$ 9000 factory overhead **Cost Summary** Materials 5000 Wages 6000 Factory overhead 9000 Total 20000 2/ record journal entries. 1- Using materials of production Work in process (1) 4000 Work in process (2) 5000 Materials control 9000 2- substantiation of wages Wages & salaries control 14000 Accrued Wages & salaries 14000 3- Upload wages Work in process (1) 8000 Work in process (2) 6000 Wages & salaries control 14000 4- Substantiation الإثبات Of F.O.H Electric expense 8400 insurance of machine 10500 2100 rent of plant accrued expenses 21000 Actual F. o. H control 21000 Electric expense 8400 insurance of machine 10500 rent of plant 2100 5- Upload factory overhead Work in process (1) 12000

Work in process (2) 9000	
Estimated F. o . H control	21000
6- Finished goods control 49000	
Work in process (1)	29000
Work in process (2)	20000

Exercises

Exercese. 1/ The Cambridge Company uses job order costing. At the beginning of the May, two jobs were in process:

	<u>Job 369</u>	<u>Job372</u>
Materials	\$ 2,000	\$ 700
Direct labor	1,000	300
Applied factory overhead	1,500	450

There was no inventory of finished goods on May1. During the month, Jobs 373, 374, 375, 376, 378, and 379 were started.

Materials requisitions for May totaled \$13,000, direct labor cost, \$10,000, and actual factory overhead, \$16,000. Factory overhead is applied at a rate of 150% of direct labor cost. The only job still in process at the end of May is No. 379, with costs of \$1,400 for materials and \$900 for direct labor. Job 376, the only finished job on hand at the end of May, has a total cost of \$2,000.

Required:

1. T accounts for work in process, finished goods, cost of goods sold, factory overhead control, and applied factory overhead.

2. General journal entries to record:

a. Cost of goods manufactured

b. Cost of goods sold

 ${\bf c}.$ Closing of over or under applied factory overhead to cost of goods sold

Ex.2 / Beaver, in com. provided the following data for January, 2013: *Materials and supplies:*

11	
Inventory, January 1, 2013	\$10,000
Purchases on account	30,000
Labor:	
Accrued, January 1, 2013	3,000
Paid during January (ignore payroll taxes)	25,000
Factory overhead costs:	
Supplies (issued from materials)	1,500
Indirect labor	3,500
Depreciation	1,000

Other factory overhead costs (all from outside suppliers on account)			14,500	
Work in process:				
	<u>Job1</u>	Job2	Job3	Total
Work in process January 1, 2013	\$ 1,000			\$ 1,000
Job costs during January:				
Direct materials	4,000	\$6,000	\$5,000	15,000
Direct labor	5,000	8,000	7,000	20,000
Applied factory overhead	5,000	8,000	7,000	20,000
Job 1 started in December, 2	2012, finis	hed during	January, and s	sold to a
customer for \$21,000 cash				

Job 2 started in January, not yet finished.

Job 3 started in January, finished during January, and now in the finished goods inventory awaiting customer's disposition Finished goods inventory January 1, 2013.

Required:- Journal entries, with detail for the respective job orders and factory overhead subsidiary records, to record the following transactions for the January:

- 1. Purchase of materials on account.
- 2. Labor paid.
- 3. Labor cost distribution.
- 4. Materials issued.
- 5. Depreciation for the month.
- 6. Acquisition of other overhead costs on credit.
- 7. Overhead applied to production.
- 8. Jobs completed and transferred to finished goods.
- 9. Sales revenue.
- 10.Cost of goods sold.

Ex.3 / Hegel Company is a manufacturing firm that uses job order costing system. On January 1, 2013 the beginning of its fiscal year, the company's inventory balances were as follows:-

Raw materials	\$20,000
Work in process	\$15,000
Finished Goods	\$30,000

The company applies overhead cost to jobs on the basis of machine-hours worked. For the current year, the company estimated that it would work 75,000 machine-hours and incur \$450,000 in manufacturing overhead cost. The following transactions were recorded for the year

1. Raw materials were purchased on account, \$410,000.

- 2. Raw materials were requisitioned for use in production, \$380,000 (\$360,000 direct materials and \$20,000 indirect materials).
- 3. The following costs were incurred for employee services: direct labor, \$75,000; indirect labor, \$110,000; sales commission, \$90,000; and administrative salaries, \$20,000.
- 4. Sales travel costs were \$17,000.
- 5. Utility costs in the factory were \$43,000.
- 6. Advertising costs were \$180,000.
- 7. Depreciation was recorded for the year, 350,000 (80% relates to factory operations, and 20% relates to selling and administrative activities).
- 8. Insurance expired during the year, \$10,000 (70% relates to factory operations, and 30% relates to selling and administrative activities).
- 9. Manufacturing overhead was applied to production. Due to greater than expected demand for its products, the company worked 80,000 machine-hours during the year(actual).
- 10. Goods costing \$9,00,000 to manufacture according to their job cost sheets were completed during the year.
- 11.Goods were sold on account to customers during the year at a total selling price of \$1,500,000. The goods cost \$870,000 to manufacture according to their job cost sheets.

Required:

- 1. Prepare journal entries to record the preceding transactions.
- 2. Post the entries in (1) above to T-accounts (don't forget to enter the beginning balances in the inventory accounts).
- 3. Is manufacturing overhead under applied or over applied for the year? Prepare journal entry to close any balance in the manufacturing overhead account to cost of goods sold (COGS). Do not allocate the balance between ending inventories and cost of goods sold (COGS).
- 4. Prepare an income statement for the year.

Ex.4/-The Fine manufacturing company uses job order costing system. The company uses machine hours to apply overhead cost to jobs. At the beginning of 2012, the company estimated that 150,000 machine hours would be worked and \$900,000 overhead cost would be incurred during 2012.

The balances of raw materials, work in process (WIP), and finished goods at the beginning of 2012 were as follows:

Raw materials \$40,000

Work in process 30,000

Finished goods 60,000

The Fine manufacturing company recorded the following transactions during 2012:

- a. Raw materials purchased on account, \$820,000.
- b. Raw materials were requisitioned for use in production, \$760,000 (\$720,000 direct materials and \$40,000 indirect materials).
- c. Direct labor, \$150,000; indirect labor, \$220,000; sales commission, \$180,000; and administrative salaries, \$400,000.
- d. Sales travel costs were \$34,000.
- e. Utility costs incurred in the factory, \$86,000.
- f. Advertising expenses were \$360,000.
- g. Depreciation for the year was \$700,000 (\$560,000 relates to factory and \$140,000 relates to selling and administrative activities).
- h. Insurance expired during the year, \$20,000 (\$14,000 relates to factory operations and \$6,000 relates to selling and administrative activities).
- i. Fine manufacturing company worked 160,000 machine hours. Manufacturing overhead was applied to production.
- j. Goods costing \$1,800,000 were completed during the year.
- k. The goods costing \$1,740,000 were sold to customers for \$3,000,000.

Required: 1. Prepare journal entries, T-accounts and <u>income statement</u> from the above information.

2.Prepare a journal entry to close the balance in manufacturing overhead account (over or under applied manufacturing overhead) to cost of goods sold.

Week 24: Spoilage and rework .

Spoilage is that part of the final produce that does not adhere to the specifications given by the client and is therefore not accepted by them.

<u>**Rework**</u> is that part of the final produce which has not been accepted by the client because it does not meet the required specifications. However, those specifications can be met by working on the item once again. Hence the name rework.

The difference between rework and spoilage is that, rework will be reworked on and sold at full price whereas spoilage is considered to be defective goods and is discarded at throw away prices in the market.

Rework and spoilage are closely linked concepts. If firms have a high percentage of rework, they will also have a lot of items in their spoilage.

Why Should We Focus On Rework And Spoilage?

Rework and spoilage are additional cost for the company. Since the company is in the business to make a profit, this gets passed on to the customer in the form of additional costs. This makes the company uncompetitive in comparison to its competitors.

The company with the lowest amount of rework and spoilage costs will have the least loss and hence they will be able to provide the best deal to the customer. Reducing rework and spoilage is therefore strategic in nature and must be paid careful attention to.

Job Costing and Rework

Job costing has created a system wherein rework and spoilage costs are allocated to the respective job where the loss is supposed to have occurred. This helps the company find out the types of jobs it is efficient and not efficient in and therefore work on reducing costs:

Normal Rework-Specific Job: The first type of rework and spoilage cost is the one that can be attributed to a specific job. The treatment in this case is simple. It is charged to the specific job account. However, distinction must be made between normal and abnormal loss. Normal loss occurs when production is efficient. If it goes beyond a certain level, it becomes abnormal rework and spoilage which is treated differently.

Normal Rework- General: The second category is rework and spoilage costs that cannot be allocated to a specific job. These costs must therefore be spread out amongst all the jobs that were performed in that period. These costs therefore get added to non manufacturing overheads.

Abnormal Rework: Abnormal rework and spoilage costs which were over and above the estimation of the company are charged to a separate loss account. This helps focus management attention on them

Scrap and Job Order Costing

Scrap is the waste that arises while manufacturing goods. It may arise because the unit being manufactured has been irreparably damaged during production. Alternatively it can arise because too much direct material is being used for production. In either case, it signifies that there are problems with the manufacturing process that need to be addressed. If left unaddressed, these can be the cause of major costs and reduce the profitability of the company.

Value May Not Be Immaterial:

Now, when the term scrap is used, the mind automatically conjures up images of waste materials. The term scrap is associated with warehouse full of junk that may not have much value for the company. Disposing them without harming the environment is often supposed to be the only priority. But, this may not always be the case.

In many cases, scrap may have significant value. This makes it necessary to ensure that the job order costing system can account for scrap.

Added To Inventory:

Once the material is declared to be scrap, its value needs to be ascertained and it is added back in the inventory of the organization. This inventory account is usually the direct materials account of the relevant job.

In some cases, companies also tend to use scrap from one job as a part of direct material for another job. This may be done directly or sometimes material may have to be processed. For instance, metal scrap can be molted and reshaped and it becomes as useful as a new piece of metal. Therefore it can be directly used in the production process.

Job Costing and Scrap:

Here are the costing conventions that are related to the treatment of scrap in job order costing. They have been mentioned in this article:

Scrap - Specific Job: No amount of scrap is considered to be normal.

Therefore all the scrap that arises in the operations of a firm is considered to be abnormal.

No distinction needs to be made between normal and abnormal like it is made in the case of rework and spoilage. Hence if a scrap can be traced to a particular job, its value is adjusted to the material inventory that has been used for that particular job.

Scrap – General: However, if scrap cannot be attributed to a specific job, it becomes a part of general overheads. This ensures that it gets distributed amongst jobs in the proportion that is decided by the allocation base. This distribution may be uneven and misleading.

Cost Variance in Job Order Costing

Cost variance in job order costing is a critical financial metric that measures the difference between the expected <u>costs and the actual costs</u> incurred during the production process. This variance is pivotal for businesses that rely on job <u>order costing</u>, as it provides insights into the <u>efficiency and effectiveness of</u> <u>their cost</u> control mechanisms. By <u>analyzing cost variance</u>, managers can identify areas where the company is overspending or underspending, allowing them to make <u>informed decisions about resource allocation</u>, budget adjustments, and process improvements. The concept of cost variance is not only relevant from an accounting perspective but also from the standpoint of project management, operational analysis, and strategic planning.

From the **accounting perspective**, cost variance helps in maintaining the integrity of the budget and ensuring that each job is completed within its financial constraints. For instance, if a **manufacturing company** expects to spend \$10,000 on raw materials for a job but ends up spending \$12,000, the cost variance would be \$2,000 unfavorable. This signals the need for a review of purchasing procedures or supplier negotiations.

From the **project management viewpoint**, <u>understanding cost variance</u> is essential for <u>keeping projects on track</u> and within budget. It serves as an <u>early</u> <u>warning system</u> for potential overruns, prompting project managers to take corrective action. For example, if labor costs are higher than anticipated, a project manager might need to reassess the workforce's productivity or consider alternative work methods.

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From the **operational analysis angle**, cost variance can indicate inefficiencies in the production process. It can highlight issues such as machine downtime, wastage, or suboptimal use of resources, which can then be addressed to <u>improve overall operational performance</u>.

Lastly, from a <u>strategic planning perspective</u>, analyzing cost variance over time can inform <u>long-term business</u> strategies. It can help in identifying trends, <u>forecasting future costs</u>, and setting realistic budgets for upcoming projects.

To delve deeper into the intricacies of cost variance in job order costing, let's consider the following points:

1. **Budgeted vs. Actual Costs**: At the heart of <u>cost variance analysis</u> is the comparison between what was budgeted for a job and what the actual costs turned out to be. This involves detailed tracking of direct materials, direct labor, and manufacturing overheads.

2. <u>variance Analysis techniques</u>: There are several methods to analyze variances, such as the use of standard costing systems, which set predetermined costs for materials and labor, and the calculation of variances from these standards.

3. **Causes of Variances**: It's crucial to understand the root causes of variances. These can range from <u>market price fluctuations</u> and inefficient labor to inaccurate cost estimations and unexpected operational hurdles.

4. **Corrective Actions**: Once variances are identified, the next step is to implement corrective actions. This might include renegotiating supplier contracts, improving labor training, or revising the production schedule.

5. **Continuous Improvement**: Cost variance analysis should be an ongoing process, contributing to a <u>culture of continuous improvement</u> within the organization. Regular <u>reviews can help in fine-tuning</u> processes and <u>preventing cost overruns</u> in the future.

6. **Reporting and Communication**: Effective <u>communication of cost</u> <u>variance</u> data to stakeholders is essential. <u>clear and concise reports</u> can <u>aid in</u> <u>decision-making</u> and ensure transparency across departments.

7. **Impact on Profitability**: Ultimately, the <u>management of cost variance</u> has a direct impact on the profitability of a company. Keeping variances in check ensures that jobs are profitable and that the company's financial health is maintained.

Example: Consider a custom furniture manufacturer that receives an order for a bespoke table. The budgeted cost for materials is \$500, and the labor cost is budgeted at \$300, with an expected overhead of \$200. If the actual costs come in at \$600 for materials, \$250 for labor, and \$300 for overheads, the cost variances would be \$100 unfavorable for materials, \$50 favorable for labor, and \$100 unfavorable for overheads. Analyzing these variances would lead to a better understanding of the discrepancies and help in making more accurate estimates in the future.

navigating cost variance in job order costing is a multifaceted endeavor that requires attention to detail, a proactive approach to problem-solving, and a commitment to continuous improvement. By embracing these principles, businesses can enhance their financial performance and maintain a competitive edge in their respective industries.

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Process costing system نظام المراحل الانتاجية

Under a process cost system, costs are accumulated according to each department, cost center or process. The average unit cost for a day, week or year is obtained by dividing the department cost by the number of units (tons, gallons, etc.) produced during the particular period.

Process costing, is probably the most widely used cost system, it represents, a type of costing procedure for mass production industries producing standard Products.

Industries using process costs are paper, steel, chemicals, textiles, oil refining, flourmills, food manufacture, milk diary, sugar worksetc

في ظل نظام تكلفة المرحلة ، يتم تجميع التكاليف وفقًا لكل قسم أو مركز تكلفة أو عملية. ويتم الحصول على متوسط تكلفة الوحدة ليوم أو أسبوع أو سنة بقسمة تكلفة القسم على عدد الوحدات (طن ، جالون ، إلخ) المنتجة خلال فترة معينة. من المحتمل أن تكون تكلفة المرحلة هي نظام التكلفة الأكثر استخدامًا ، فهي تمثل نوعًا من إجراءات تقدير التكاليف لصناعات الإنتاج الضخم التي تنتج منتجات قياسية. الصناعات التي تستخدم تكاليف العملية هي الورق ، والصلب ، والمواد الكيميائية ، والمنسوحات ، وتكرير الزيت ، ومطاحن الدقيق ، وصناعة الأغذية ، ومنتجات الحليب ، وأعمال السكر

Process costing procedure

The essential system in costing procedure are :

- 1-the factory is divided in to a number of process & an account is maintained for each process.
- 2-ceash process account debited with materials cost labor

Direct expenses & overheads allocated to the process.

- 3- the output of a process is transferred to next process & becomes input for it.
- 4-the finished output of the last process is transferred to the finished goods account .

إجراءات تكلفة المراحل ان النظام الأساسي في إجراء التكلفة هو: 1- يقسم المصنع إلى عدد من العمليات ويحتفظ بحساب لكل عملية. 2- يتم خصم حساب كل مرحلة مع تكلفة المواد وتكلفة العمل و المصروفات المباشرة و النفقات العامة المخصصة للمرحلة. 3- يتم تحويل مخرجات المرحلة إلى العملية التالية وتصبح مدخلاً لها. 4- يتم تحويل المخرج النهائي للمرحلة الأخيرة إلى حساب البضاعة التامة الصنع.

Accumulation of costs

In a process cost system procedures must be developed to:

- 1. Accumulate materials, labor and factory overhead by departments.
- 2. Determine the unit cost for each department.
- 3. Transfer costs from one department to the next.
- 4. Assign costs to work in process.

تجميع التكاليف يجب تطوير إجراءات نظام تكلفة المراحل من أجل: تجميع المواد والعمالة والتكاليف الصناعية غير المباشرة من قبل الاقسام. 2. تحديد تكلفة الوحدة لكل قسم. تحويل التكاليف من قسم إلى آخر.
 تعيين التكاليف للإنتاج تحت التشغيل.

Flow of units

The flow of units (in terms of quantity) through a process cost system can be summarized by the following equation:

Units in process at beginning + units started in process or transferred in = units transferred out + units completed and on hand + units still in process

When any four terms in the equation are known the missing component can be computed from the equation. Note that all the components are not necessarily present in each situation (i.e. there may not be units in process at the beginning of the period or units completed and still on hand at the end of the period).

تدفق الوحدات يمكن تلخيص تدفق الوحدات (من حيث الكمية) من خلال نظام تكلفة المرحلة بالمعادلة التالية: الوحدات تحت الانتاج بداية المدة + الوحدات التي تم البدء بها أو منقولة اليها = الوحدات المنقولة للخارج + الوحدات التامة + الوحدات التي ماز الت في العملية الانتاجية.

عندما يتم معرفة أي من التفاصيل الأربعة في المعادلة ، يمكن حساب المكون المفقود من المعادلة. لاحظ أن جميع المكونات ليست بالضرورة موجودة في كل موقف (أي قد لا تكون هناك وحدات قيد المعالجة في بداية الفترة أو وحدات مكتملة ولا تزال في متناول اليد في نهاية الفترة).

The Journal entries :

A- To record the cost to Process :

Process NO () A/C	***
Stores control	***
Wages control	***
Factory overhead control	***

100

B -transferred Process A/C to anoth	ner :
Process NO () A/C	***
Process NO () A/C	***
C-transferred the last Process A/C	:
Stores control of finished g	good ***
Process NO () A/C ***
And :	
Cost of sales ***	
Stores control of finishe	ed good ***
And :	
Sales Revenue	***
Cost of sales	***

Example:- Assume that the Beckerman Company had 1,500 units in work in process at the beginning of the month, put 5,000 units into process and had 1,000 units in work in process at the end of the month. All units completed were transferred out to Department B. The number of units transferred is computed as follows:

Flow units

Units in process at beginning	150)0
Units started in process	50	00
Units available	6,	500
Units still in process		1,000
Units transferred to Department	В	. <u>5,500</u>
Out flow		6500

Equivalent Units of Production

To allocate costs when inventories of partially finished goods are involved, all units (beginning inventory, goods transferred, ending inventory) must be expressed in terms of completed units. This is done by means of a common denominator, known as equivalent units of production or equivalent production.

Methods of Costing Work in Process

(1) Average costing

(2) FIF0 Costing

Week 27: Equivalent production in average costing method. Average costing

under this method also known as weighted– average costing, the opening work in process inventory costs are merged with the costs of the new period and a new average cost is obtained. Thus there is only one average cost for goods completed.

Equivalent units under average costing may be computed as follows:-

Units completed (Transferred out plus still on hand) + [Ending work in process X Degree of completion (%)]

This method is based on the assumption that all the beginning work in process was started and completed during the current period.

Example:- The following data related to the activities of Department A during the month of May:-

Beginning work in process8,000 Units(100% complete as materials70% complete as to conversion costs)Goods started in process86,000Units transferred to Dept. B80,000Units completed and on hand4,000Ending work in process10,000

(100% complete as to materials 60% complete as to conversion costs) Equivalent production in Department A for the month, using average costing is computed as follows:-

	Materials	Conversion costs
Units Completed		
Transferred to Dept. B	80,000	80000
Completed and on hand	4,000	4,000
Ending inventory units, amo	unt completed:-	
Materials (100%)	10,000	
Conversion costs (60%)		6,000
Equivalent production	94,000	90,000

Week 28: Equivalent production in FIF0 costing method.

FIF0 Costing

Under this method, the opening work in process inventory costs are separated from additional costs applied in the new period. Thus, there are two unit costs for the period: (1) opening work in process units completed and (2) units started and finished in the same period.

Under FIF0, the beginning work in process is assumed to be completed and transferred first. The ending work in process is then assumed to be from the goods put into production during the period. Thus, ending work in process is calculated from current period unit costs according to degree of completion. Equivalent units under F.I.F.O costing may be computed as follows:-

Units completed (Transferred out plus still on hand)

-Opening work in process (regardless of stage of completion)

+Amount needed to complete Beginning work in process

+Amount completed in Ending work in process.

Example: Using the same data as in Example 2, we compute the equivalent production for Department A under the FIFO method follows:-

	<u>Materials</u>	Conversion costs
Units completed		
Transferred to Dept. B	80,000	80000
Completed and on hand	4,000	4000
Less: Beginning work in process _	(8,000)	(8,000)
Started and completed this period	76,000	76000
Completion of Beginning Inventor	y units	
Materials	(0%)	0
Conversion costs (30%)		2,400
	76,000	78,400
Ending Inventory units Completed		
materials (100%)	10,000	
Conversion costs (60%)	•	6,000 .
	86.000	84,400

Equivalent production under FIFO may also be computed by subtracting the period of beginning work in process that was completed during the previous month from equivalent production under average costing.

	<u>Materials</u>	Conversion Units
Equivalent production average		
Costing (From Example 2)	94,000	90,000
Less: Beginning work in process		
(Portion completed Last month)		
Materials (100%)	(8,000)	
Conversion Costs (70%)		(5,600)
Equivalent production F.I.F.O costing	g <u>86,000</u>	84,400

Week 29: production Report.

Cost of production Report

The cost of production report shows all costs chargeable to a department or cost center for the period. Since its principal objective is the control of costs, detailed data relating to total and unit costs must be provided. Typically, the cost breakdown is made by cost elements for each department (or cost center). This report is also a good source for summary journal entries at the end of the month.

The cost of production report generally contains four sections:

Quantities This section accounts for the physical flow of units into and out of a department.

-Equivalent production This section shows the sum of:

(1) it's still in process restated in terms of completed units

(2) total units actually completed.

Costs to Account for This section accounts for the incurrent of costs that -were:

(1) in process at the beginning of the period

(2) transferred in from previous departments

(3) added by the department.

-Costs Accounted for This section accounts for the disposition of costs charged to the department. Were the costs:

(1) transferred out to another department or to finished goods.

(2) Completed and on hand.

(3) Still in process at end of the period.

It should be noted that the total of the costs to account for must equal the total of the costs Accounted for

(1) التكاليف التي تم نقلها إلى قسم آخر أو إلى بضاعة تامة الصنع. (2) التكاليف المكتملة وفي متناول اليد. (3) التي لا تزال قيد المعالجة في نهاية الفترة. وتجدر الإشارة إلى أن إجمالي التكاليف المراد حسابها يجب أن يساوي إجمالي التكاليف المحسوبة.

Example:- The Vogel manufacturing corporation uses the first in first out method of process costing. The following data relate to the operations of Department A during the month of July 19X1:

Production (in units)

Beginning work in process (100% complete as to materials:-
(2/3)% complete as to conversion costs)1,500Started in process5,000Transferred to Dept. B5,500Ending work in process (100% complete as to materials:-
60% complete as to conversion costs)1,000

Costs in Beginning inventoryMaterials\$1,680

Labor	1,400
Overhead	1,120
Cost Added during	g the Month
Materials	\$10,000
Labor	8,500
Overhead	6,800

The July cost of production Report for Department A is shown below:

The Vogel manufacturing corporation cost of production Report, Department A F.I.F.O cost method for the month July 19X1

1) Quantities

Units in process at Beginning	1,500
(All materials; 2/3 conversion costs)	
Units started in process	<u>5,000</u>
Total units to account for	<u>6500</u>
Units transferred to next Department	5,500
Units still in process	
(All materials; 3/5 Labor and overhead	1) <u>1,000</u>
Total units for accounted	<u>6500</u>

2) Equivalent production

	<u>Materials</u>	Conversion costs
Transferred to next department	5,500	5,500

-Beginning inventory (total)	<u>1,500</u> 4.000	<u> </u>	
+Amount needed to complete	1,000	1000	
heginning inventory (1/3)	0	500	
beginning inventory (1/5)	4 000	<u></u>	<u>.</u> M
+Ending inventory	1,000		
Fauivalent production	5,000	<u> </u>	<u>.</u>
Equivalent production	<u>3,000</u>		<u>v</u>
3) Costs to Account for			
c) <u>costs to rate o tate rot</u>	Тс	otal Cost	Unit Cost
Work in process Beginning Balance	54200)	<u>emi cost</u>
Costs Added during month	<u>φ1,200</u>	<u>,</u>	
Materials	\$10.000)	2000(a)
Labor	φ10,000 8 5	, ())	2,000(a)
1.667(h)	0,5	000	
Factory overhead	6 800		1.33(c)
Tatel agets added	<u>0,800</u> \$25,200		<u> </u>
Total costs added	<u>\$23,300</u> \$20,500		\$3,000
Total costs to Account for	<u>\$29,300</u>	-	
Computations Unit Costs (a) Materials, $610,000/5,000, 62.6$			
(a) Materials: $510,000/5,000 = 52,0$	100		
(b)Labor: $\$8,500/5,100 = \1.6	066		
(c) Overhead: $$6,800/5,100 = 1.3	333		
4) Costs Accounted for			
Transferred to next Department			
From Beginning Inventory (1500 U	nits)		
Inventory Value	,	\$4.200	
Labor added (1500 * 1.667 * 1/3)		833	
Factory overhead Added (1500 * \$1	.333 * 1/3)	667	
Total cost. Beginning units		\$5,700	
From current production:		<u> </u>	
Units started & completed (4000 un	its * \$5.00)	20.000	
Total cost (beg + started and complete	eted)	25,700	
Work in process. Ending (3/5 comp	leted):		
Materials $(1000 * \$2.00)$	2.000		
Processing costs $(1000 * 3.00 * 3.5)$	1 800	3 800	
Total costs Accounted for	1,000	<u>\$29,5</u> 00	

Example 5:- If the Vogel manufacturing had used the average costing method instead of F.I.F.O, its cost of production report for the month of July would have appeared as shown below. The data are the same as in **Example 4**

The Vogel manufacturing corporation cost of production Report Department A Average costing method for the month of July 19X1.

1) Quantities

Units in process at Beginning	
(all materials 2/3 conversion costs)	1,500
Units started in process	<u>5,000</u>
Total units to be account for	6,500
Units Transferred to next Department	5,500
Units still in process	
(All materials 3/5 conversion costs)	1,000
Total units for accounted	6,500

2) Equivalent production:

	Materials	Conversions Costs
Transferred to next department	5,500	5,500
Ending work in process:		
Material 100%	1,000	
Conversion cost 60%		600
Equivalent production	<u>6,500</u>	6,100

3) Cost to Account for:	Total cost	Unit Cost
Work in process, beg. inventory		
Material	1680	
Labor	1400	
F.O.H	1120	
Cost add during period: -		
Material	10000	1.79692(a)
Labor	85000	1.62295(b)
F.O.H	6800	1.29836(c)
Total cost	29500	

Computations

(a) Materials = (1680 + 10000) / 6500 = 1.7962(b) Labor = (1400 + 8500) / 6100 = 1.62295(c) F.O.H = (1120 + 6800) / 6100 = 1.29836

4)Cost Account for:
Cost of uni	ts transferred to next departm	nent :	
(5500 * 4.71823)			25950
Cost	t of work in process, end. inve	entory	
Material	1000* 1.7962 =	1797	
Labor	60% * 1000*1.62295=	974	
F.O.H	100% * 1000*1.29836=	779	3550
			29500

Week 30: Treatment of spoiled units. **Spoiled units**

Spoilage is the term used to describe units of output that do not meet the quality standards or specifications required by customers or management. Spoilage may occur at any stage of the production process, and it may be either normal or abnormal. Normal spoilage is the unavoidable and expected loss of units due to the nature of the process, materials, or equipment. It is considered part of the cost of production and is usually allocated to the good units. Abnormal spoilage is the excessive and unexpected loss of units due to errors, accidents, or inefficiencies. It is considered a loss and is usually charged to a separate account.

identify spoilage

The first step in accounting for spoilage is to identify and separate the spoiled units from the good units. This can be done by inspecting the units at the end of each process or department, or by using quality control techniques such as sampling or testing. The number and cost of spoiled units should be recorded and reported for each process or department. The cost of spoiled units can be calculated by multiplying the number of spoiled units by the average cost per unit for each process or department.

account for normal spoilage

Normal spoilage is usually treated as a product cost and is allocated to the good units as part of the cost of production. This means that the cost of normal spoilage is included in the inventory value and the cost of goods sold. There are two methods of accounting for normal spoilage: the weighted-average method and the FIFO method. The weighted-average method assigns the same average cost per unit to both the good units and the normal spoiled units. The FIFO method assigns the current period's cost per unit to the good units and the prior period's cost per unit to the normal spoiled units.

account for abnormal spoilage

Abnormal spoilage is usually treated as a period cost and is charged to a separate account, such as Spoilage Expense or Loss from Abnormal Spoilage. This means that the cost of abnormal spoilage is excluded from the inventory value and the cost of goods sold. The cost of abnormal spoilage can be calculated by multiplying the number of abnormal spoiled units by the average cost per unit for each process or department. The cost of abnormal spoilage should be deducted from the total cost of each process or department before allocating the remaining cost to the good units.

Report spoilage

Spoilage should be reported in the financial statements and the management reports to provide information about the efficiency and quality of the production process. The amount and cost of spoilage should be disclosed in the notes to the financial statements, along with the method of accounting for spoilage and the basis of allocation. The percentage and cost of spoilage should be calculated and compared to the standards or benchmarks for each process or department. The variance between the actual and the standard spoilage should be analyzed and explained in the management reports, along with the corrective actions taken or planned to reduce spoilage.

Exercises

<u>Exercise(1)</u>: In 1/1/2008, input unit to process 2 as 200 unit at \$3 per unit The elements of cost add to it for 1/1 - 31/122008 as below :

direct material \$ 6000 direct labor \$ 5400 Factory overhead \$ 3400 Units transferred to process 3 1500 unit 500 unit Ending work in process (100% complete as to materials 60% complete as to labor & 40% complete as to Factory overhead) *Prepare process 2 Account*

Exercise(2):

In 1/1/2020, input unit to process 3 as 5000 unit at \$12 per unit The elements of cost add to it for 1/1 - 31/12/2020 as below :

direct material	\$ 14250
direct labor	\$ 18680
Factory overhead	\$ 13770

Units transferred to Stores 4200 unit

400 unit Ending work in process

(100% complete as to materials 80% complete as to labor & 60% complete as to Factory overhead $\)$

Spoilage units 400 unit sold at\$ 4800

Normal spoilage rate 5% for input units

Selling price \$ 30 per unit

Prepare process 3 Account

Exercise(3):

In 1/1/2016 Beginning work in process (2) as 400 units with total cost \$ 6400 (\$4400 direct material, \$1200 direct labor, \$800 Factory overhead)

(80% complete as to materials 60% complete as to labor & 50% complete as to Factory overhead $\)$

New units started in process at \$12 per unit 500

Cost Added during the year :

\$10700 Materials

\$13890 Labor

\$9020 Overhead

Units transferred to next process (3) 4400

Ending work in process 600 (100% complete as to materials 80% complete as to labor & 60% complete as to Factory overhead)

Spoilage units 400 unit sold at\$ 12 per unit

Normal spoilage rate 5% for input units

Prepare process 2 Account

A- using average costing B - under F.I.F.O costing