



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

Educational Satchel

الحقيبة التعليمية

Cost Accounting

محاسبة الكلفة

Accounting Techniques Department

قسم تقنيات المحاسبة

Second Class

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اعداد

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الأهداف التعليمية

سيكون الطالب بعد نهاية المحاضرات قادرا على ان:

- 1- يتعرف على محاسبة الكلفة ومزاياها وعلاقتها مع المحاسبة المالية والمحاسبة الادارية.
- 2- معرفة عناصر الكلف وتصنيفها ومراكز الكلف.
- 3- معرفة كل ما يتعلق بالرقابة على عنصر المواد من وظائف والتي تتعلق بعملية الشراء والصرف وتسعير المواد الصادرة والقيود الخاصة بها وكذلك مستويات الخزين.
- 4- معرفة كل ما يتعلق بالرقابة على عنصر الاجور وعملية احتسابها وطرق احتسابها والقيود الخاصة بها.
- 5- معرفة كل ما يتعلق بالرقابة على عنصر النفقات العامة وطرق توزيعها وتحميلها على مراكز الكلف.
- 6- معرفة كيفية اعداد قوائم التكاليف والطرق المستخدمة في اعدادها.
- 7- معرفة كل ما يتعلق بالأوامر الانتاجية وكيفية احتساب تكاليف كل امر انتاجي والقيود الخاصة بها.
- 8- معرفة كل ما يتعلق بالمراحل الانتاجية وكيفية احتساب تكاليف كل مرحلة والقيود الخاصة بها.

What is Cost Accounting

ما المقصود بحاسبة 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 وتفسيرها 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 (أكثر طريقة ملائمة للعمل) بناءً على كفاءة وقابلية التكلفة.

Advantages of cost accounting:

There are multiple advantages 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.

مزايا (الفوائد) محاسبة التكاليف: هناك مزايا 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 أجل الرقابة على العمليات الحالية واتخاذ القرارات والتخطيط للمستقبل.

the relationship between financial and management accounting to cost accounting

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.

ما هي العلاقة بين المحاسبة المالية والإدارية ومحاسبة التكاليف؟

1. المعنى-

أ. محاسبة التكاليف هي عملية المحاسبة عن التكاليف ، من البداية وحتى نهاية فترة التقرير. يتم إعداد التقارير في نهاية الفترة للتأكد من إمكانية خفض التكلفة أو التحكم فيها.

ب. تشير المحاسبة الإدارية إلى تطبيق مبادئ المحاسبة والإدارة المالية لإنشاء وحماية وحفظ وزيادة قيمة المنظمة لأصحاب المصلحة فيها.

ج. المحاسبة المالية هي فن تسجيل وتصنيف وتلخيص المعاملات والأحداث النقدية بطريقة مفيدة لأصحاب المصلحة لتفسير نتائجها.

2. الهدف-

أ. تسجل محاسبة التكاليف بشكل أساسي تكلفة إنتاج منتج أو تقديم خدمة تتعامل فيها الأعمال بشكل أساسي.

ب. يتم تنفيذ المحاسبة الإدارية لمساعدة الإدارة على اتخاذ القرارات من خلال توفير المعلومات ذات الصلة.

ج. يتم إجراء المحاسبة المالية لإعداد حساب الربح والخسارة والميزانية العمومية للعرض على المساهمين والمستخدمين الخارجيين الآخرين.

3. تسجيل البيانات -

أ. في محاسبة التكاليف ، يتم تسجيل البيانات باستخدام كل من الأرقام السابقة والحالية.

ب. تركز المحاسبة الإدارية على إسقاط البيانات للمستقبل.

ج. سجلات المحاسبة المالية البيانات التاريخية.

4. القواعد واللوائح -

أ. تتبع محاسبة التكاليف مبادئ وإجراءات معينة لتسجيل التكاليف.

ب. لا تتبع المحاسبة الإدارية أي قواعد وأنظمة محددة.

ج. تتبع المحاسبة المالية مبادئ المحاسبة ومعايير المحاسبة ومعايير المحاسبة المالية.

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.

Cost 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.

An expense 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....

While A loss 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 والمصروفات والخسارة؟
في المحاسبة ، على الرغم من أن الكلمات الثلاث التي تمثل التكلفة والمصروفات 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 المصروفات المدفوعة مقدماً أو نفقات على البحث والتطوير هي بعض أمثلة التكلفة المؤجلة.

تتضمن المصروفات التكلفة المستنفذة فقط والتي يتم استخدامها في كسب الإيرادات 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 إيرادات أو أصول أو حتى عملاء ، وبالتالي فإن الخسارة هي تدفق الأموال دون أي فائدة اقتصادية (مماثلة) منسجمة معها.

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

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

(ب) تكلفة المواد غير المباشرة.

(أ) تكلفة المواد المباشرة:

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 المصنوعات الجلدية والجير في إنتاج الطباشير ، وما إلى ذلك ، هي أمثلة على المواد المباشرة. أي مواد يتم شراؤها واستخدامها لوظيفة 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.

الأدوات الصغيرة ، والقرطاسية المستخدمة في الأعمال ، والقرطاسية المكتبية ، والملصقات الإعلانية ، والمواد المستخدمة في صيانة المصانع والآلات هي 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'.

2. العمل:

العمل هو الأجر الذي يُدفع مقابل الجهد البدني أو العقلي المنفق في الإنتاج والتوزيع. "تكلفة العمالة هي تكلفة الأجر (الأجور ، والمرتببات ، والعمولات ، والمكافآت ، وما إلى ذلك) لموظفي الشركة"

تنقسم تكلفة العمالة أيضًا إلى أجزاء مباشرة وغير مباشرة:

(أ) تكلفة العمالة المباشرة:

ويسمى أيضًا "الأجور المباشرة". تكلفة العمالة المباشرة هي تكلفة العمالة المشاركة مباشرة في عمليات الإنتاج. على سبيل المثال ، العمال المنخرطون في جميع 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 لهؤلاء الأشخاص إلى وظيفة أو عملية أو أمر إنتاج. تكاليف العمالة لوقت الخمول ، والعمل الإضافي ، والإجازات ، وما إلى ذلك ، تؤخذ أيضًا على أنها تكاليف غير مباشرة. وبالمثل ، يتم أيضًا تضمين الموظفين الكتابيين والإداريين والباعة وموظفي التوزيع في مدار "العمل غير المباشر".

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- المصروفات:

النفقات بخلاف المواد والعمالة هي العنصر الثالث للتكلفة.

يتم تعريفه كـ- "تكلفة الخدمة المقدمة إلى تعهد والتكلفة الافتراضية لاستخدام الأصول المملوكة".

المصروفات نوعان:

(أ) المصاريف المباشرة ، و

(ب) المصاريف غير المباشرة.

(أ) المصاريف المباشرة:

هذه 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.

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).

تصنيف التكلفة

يمكن تصنيف التكاليف على أساس ما يلي: -

1. التصنيف حسب الطبيعة (المواد ، العمالة ، النفقات العامة).

2. التصنيف حسب الوظائف (تكلفة الإنتاج ، تكلفة البيع والتوزيع ، تكاليف الإدارة).

3. التصنيف حسب تتبع المنتج. (مباشر و غير مباشر).

4. التصنيف حسب التغيير في حجم النشاط. (ثابت ، متغير وشبه متغير).

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

Direct materials 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.

Direct labor cost 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

Overheads: 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 هي المواد 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 وعمولة وكلاء البيع والنفقات العامة: وتشمل المواد غير المباشرة والأجور غير المباشرة والمصروفات الأخرى التي يمكن تقسيمها إلى مواد استهلاكية ومواد تعبئة وقطع غيار وما إلى ذلك. وهذا 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:

Production or manufacturing costs. These are costs associated with the factory.

Administration costs. These are costs associated with general office departments.

Marketing, 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 والتكاليف 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 المواد التي من المعروف أنها استخدمت في صنع وبيع منتج (أو حتى تقديم خدمة).

تكاليف العمالة المباشرة هي التكاليف المحددة للقوى العاملة المستخدمة لصنع منتج أو تقديم خدمة. يتم تحديد تكاليف العمالة المباشرة عن طريق قياس الوقت المستغرق للحصول على وظيفة، أو الوقت المستغرق في "عمل الإنتاج المباشر"

المصروفات المباشرة الأخرى هي تلك المصروفات التي تم تكبدها بالكامل كنتيجة مباشرة لصنع منتج أو تقديم خدمة أو إدارة قسم.

تشمل أمثلة التكاليف غير المباشرة أجور المشرفين ومواد التنظيف وتأمين المباني

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 وفقاً 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 شيوعاً 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.

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 أو شخصًا مسؤولاً أو خط انتاجي أو مشروع. وتتمثل مسؤولية مدراء مراكز الكلفة في بقاء الكلف المناطة بهم في نفس مستوى أو ادنى من الكلف المخططة.

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

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

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 أجل:

- العمل على تحديد تكلفة تقديم المنتج أو الخدمة
- العمل على الموارد اللازمة من مواد وتكلفة العمل والمصروفات الأخرى لإنشاء أو تكوين الوحدة.

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,	
Depreciation 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
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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 repair	750 000
Wages of employs marketing	1000 000
Supervisory Bonus	680 000
Administrative expenses	300 000

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 جزءاً أساسياً من المنتج النهائي وتشمل المواد المستخدمة في التصنيع والتجميع وإعادة التدوير ، وجزء مهم من العملية وهو الإنتاج ، لذلك لا تتم العملي الانتاجية إذا كانت المواد غير متوفرة بالكمية والجودة والوقت المناسب. ويمكن تقسيم المواد التي تستلمها المنظمة الى ثلاث مجموعات.

المواد الخام مثل القطن في صناعة الملابس.

المواد شبه المصنعة ، مثل الأثاث غير المطلي.

المواد المكتملة: قطع غيار

MATERIAL CONTROL SYSTEM نظام مراقبة المواد

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 جزءاً مهماً من تكلفة المنتج ، وبالتالي ، فإن الرقابة المناسبة على المواد ضرورية ، وسيؤدي النظام الفعال للرقابة على المواد إلى انخفاض كبير في تكلفة الإنتاج.

The functions of the material control system are: وظائف نظام مراقبة المواد

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

MATERIAL CONTROL SYSTEM اهداف نظام مراقبة المواد

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 وتخزينها بكفاءة واستخدامها أو استهلاكها بكفاءة. وتتكون مراقبة المواد من الرقابة على مستويين: (1) رقابة كمية و (2) المالية.

Purchase process عملية الشراء

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 أهمية 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.

Documentary cycle of the purchase process الدورة المستندية لعملية الشراء

- 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. فحص المواد.

Issuing of materials اصدار (صرف) المواد

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.

Pricing of materials تسعير المواد الصادرة

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.

Methods Of Pricing Materials Issues طرق تسعير المواد المصدرة

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 بـ "دفعة" معينة ، وبالتالي ، لا يمكن تحديد التكلفة الدقيقة لوحدة معينة صادرة. إذا كان سعر الشراء لكل 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..... طريقة ما يرد أولاً يصرف أولاً
 2. Last In First Out(LIFO) Method ... طريقة ما يرد آخرًا 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 نسبياً. هذه الطريقة مفيدة أيضاً في أوقات انخفاض الأسعار لأن سعر إصدار المواد إلى الطلبية سيكون مرتفعاً 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 * 3 300 * 4	2700
Jan. 3	600	5	3000				1400	500 * 3 300 * 4 600 * 5	5700
Jan. 6				600	500*3 100*4	1900	800	200 * 4 600 * 5	3800
Jan.10	700	4.5	3150				1500	200 * 4 600 * 5 700*4.5	6950
Jan.15				850	200*4 600*5 50*4.5	4025	650	4.5	2925
Jan.20	300	6	1800				950	650*4.5 300*6	4725
Jan.23				100	4.5	450	850	550*4.5 300*6	4275
Jan.25				(50)	50*4.5	(225)	900	600*4.5 300*6	4500
	1900		9150	1500		6150	900		4500

2- journalize the transactions

Journal Entry for an Inventory Purchase(Purchase Entry)

-Jan.2

Raw materials control	1200	
Accounts payable		1200

Journal Entry for an Inventory Purchase(Purchase Entry)

-Jan.3

Raw materials control	3000	
Accounts payable		3000

Move Raw Materials to Work in Process(Issue Entry)

Jan.6

in-process control	1900		Work-
Raw materials control	1900		-

Journal Entry for an Inventory Purchase(Purchase Entry)

-Jan.10

Raw materials control	3150	
Accounts payable		3150

Move Raw Materials to Work in Process(Issue Entry)

-Jan.15

Work-in-process control	4025	
- Raw materials control		4025

Journal Entry for an Inventory Purchase(Purchase Entry)

-Jan.20

Raw materials control	1800	
Accounts payable		1800

Move Raw Materials to Work in Process(Issue Entry)

-Jan.23

Work-in-process control	450	
- Raw materials control		450

Return the materials issued for stores(Return Entry)

-Jan.25

Raw materials control	225	
Work-in- process control		225

Stock Equation

first Balance + (received – return to supplier)=(Issued- return to store) + end balance

$$\begin{array}{rcl} \text{رصيد اول المدة} + (\text{الوارد} - \text{المردودات الى المجهزين}) & = & (\text{المردودات الى المخزن}) + \text{رصيد اخر المدة} \\ 1500 + 9150 & = & 4500 + 6150 \\ 10650 & = & 10650 \end{array}$$

2.Last in First Out Method: (LIFO) طريقة الوارد اخرأ يصرف اولاً

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 تماماً. بموجب هذه الطريقة فان المواد التي تم استلامها اخر ا يتم إصدارها أولاً. وسيكون سعر المادة التي سيتم إصدارها هو سعر تكلفة آخر دفعة من المواد المشتراة.

هذه الطريقة مفيدة خلال فترة ارتفاع الأسعار لأن المواد ستصدر من آخر شحنة بسعر يرتبط ارتباطاً وثيقاً 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 Purchased 700 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.25 The 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:-

1-Bin card

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*6 550*5.5	6025
Jan. 5	600	6.5	3900				1650	500*6 550*5.5 600*6.5	9925
Jan. 6				500	6.5	3250	1150	500*6 550*5.5 100*6.5	6675
Jan.10	700	7.5	5250				1850	500*6 550*5.5 100*6.5 700*7.5	11925
Jan.15				800	100*6.5 700*7.5	5900	1050	500*6 550*5.5	6025
Jan.20	300	5	1500				1350	500*6 550*5.5 300*5	7525
Jan.22	(250)	5.5	(1375)				1100	500*6 300*5.5	6150

								300*5	
Jan.23				700	300*5 300*5.5 100*6	3750	400	400*6	2400
Jan.25	Unit damage			100	6	600	300		1800
total	1900		12300	2100		13500	300		1800

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 control	3900	
Accounts payable		3900

Move Raw Materials to Work in Process(Issue Entry)

-Jan.6

Work-in-process control	3250	
- Raw materials control		3250

Journal Entry for an Inventory Purchase(Purchase Entry)

-Jan.10

Raw materials control	5250	
Accounts payable		5250

Move Raw Materials to Work in Process(Issue Entry)

-Jan.15

Work-in-process control	5900	
- Raw materials control		5900

Journal Entry for an Inventory Purchase(Purchase Entry)

-Jan.20

Raw materials control	1500	
Accounts payable		1500

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)

-Jan.23

Work-in-process control	3750	
- Raw materials control		3750

Journal entry to write off damaged inventory

-Jan.25

Loss on inventory write-off	600	
Raw materials control		600

Stock Equation

first Balance + (received – return to supplier)=(Issued- return to store) + end balance

$$3000 + 12300 = 13500 + 1800$$

$$15300 = 15300$$

Weight Average Method طريقة المعدل الموزون

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 تسعيرها على عدد الأسعار المستخدمة في هذا الإجمالي .
يتم تحديد متوسط سعر بسيط جديد عند إصدار إيصال جديد . يتم مراجعة السعر أيضًا عند نفاذ 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
Feb.10	300	6	1800				600	5.47	3283
Feb.12				250	5.47	1367.5	350	5.47	1915.5
Feb.28	Unit damage			50	5.47	273.5	300		1642
Total	600		3200	800		4058	300		1642

2- journalize the transactions

Journal Entry for an Inventory Purchase(Purchase Entry)

-Jan.4

Raw materials control	400	
Accounts payable		400

Move Raw Materials to Work in Process(Issue Entry)

-Jan.5

Work-in-process control	2417	
- Raw materials control		3250

Journal Entry for an Inventory Purchase(Purchase Entry)

-Jan.8			
	Raw materials control	1000	
	Accounts payable		1000

Journal Entry for an Inventory Purchase(Purchase Entry)

-Jan.10			
	Raw materials control	1800	
	Accounts payable		1800

Move Raw Materials to Work in Process(Issue Entry)

-Jan.12			
	Work-in-process control	1367.5	
-	Raw materials control		1367.5

Journal entry to write off damaged inventory

-Jan.28			
	Loss on inventory write-off	273.5	
	Raw materials control		273.5

Stock Equation

$$\begin{aligned} \text{first Balance} + (\text{received} - \text{return to supplier}) &= (\text{Issued} - \text{return to store}) + \text{end balance} \\ 2500 + 3200 &= 4058 + 1642 \\ 5700 &= 5700 \end{aligned}$$

EOQ (Economic Order Quantity) كمية الطلب الاقتصادية

Concept And Meaning Of Economic Order Quantity (EOQ) مفهوم ومعنى كمية الطلب الاقتصادية

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.

Ordering Cost كلف الطلبية

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.

هي كلف اعادة الطلبية وهي تتكرر بشكل طبيعي، والشراء بكميات كبيرة يساعد على تخفيض كلف الطلبية.

* 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.

Carrying Cost كلف التحميل

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 be low. 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 الآتي:-

1. Formula Method
2. Graphical Method
3. Trial And Error Method

1. صيغة المعادلة

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 : A 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.

What is the economic order quantity?

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

مفهوم ومعنى الحد الأدنى لمستوى الخزين Concept And Meaning Of Minimum Stock Level

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.

The minimum level is determined by using the following formula

$$\text{Minimum Level} = \text{Re-order level} - (\text{Normal consumption} \times \text{Normal Re-order Point})$$

Calculation OF Minimum Level Or Safety Stock

احتساب الحد الأدنى لمستوى خزين الامان

1. $\text{Re-order Level} = \text{Maximum consumption} \times \text{Maximum Re-order Point.}$
2. $\text{Normal consumption} = (\text{Maximum Consumption} + \text{Minimum Consumption})/2$
3. $\text{normal Re-order Period} = (\text{Maximum Re-order Period} + \text{Minimum Re-order Period})/2$

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)

$$= 7200 - (500 \times 10)$$

$$= 2200 \text{ units.}$$

Working Notes:

1. $\text{Re-order Level} = \text{Maximum consumption} \times \text{Maximum Re-order Point}$

$$= 600 \times 12 = 7200 \text{ units}$$

2. $\text{Normal consumption} = (\text{Maximum Consumption} + \text{Minimum Consumption})/2$

$$= (600+400)/2 = 1000/2 = 500 \text{ units}$$

3. $\text{Normal Re-order Period} = (\text{Maximum Re-order Period} + \text{Minimum Re-order Period})/2$

$$= (12+8)/2 = 10 \text{ days}$$

Maximum Level And Its Calculation

Concept And Meaning Of Maximum Level

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.

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

$$\begin{aligned} \text{Maximum Level} &= \text{Re-order level} + \text{Re-order quantity} - (\text{Minimum consumption} \times \\ & \text{Minimum Re-ordering period} \\ &= 1500 + 1000 - (150 \times 4) \\ &= 1900 \text{ units.} \end{aligned}$$

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 500 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 the month of 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

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- Economic order quantity
- .2- Minimum Level
- .3- Maximum Level

Labor Cost Control

الرقابة على كلفة العمل

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

Labor cost covers one of the major portion of the total cost of a product or job.

كلفة الاجور تغطي حصة رئيسية من الكلفة الاجمالية للمنتج او امر العمل unnecessarily due to inefficiency of workers, wastage of materials by workers, idle time, unusual overtime work and high labor turnover.

ربما الزيادة تكون غير ضرورية بسبب نقص كفاءة العاملين. الفاقد من المواد من قبل العاملين، ضياع الوقت، الوقت الاضافي غير الاعتيادي وارتفاع دوران العمل. وبالتالي على الادارة ابتكار تقنيات فعالة للسيطرة على كلفة الاجور لضمان مخرجات عالية وجودة أفضل بكلفة أقل من خلال الاستغلال الافضل لقوة العمل.

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.

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.

بالأساس الادارة تشعر بقلق اتجاه كلفة العمل، رقابة كلفة الاجور تتضمن أنظمة، اجراءات، تقنيات وأدوات تستخدم من الادارة من أجل الحفاظ على كلفة العمل للمنتج أو لأمر العمل كحد أدنى ممكن. ورقابة الاجور تتضمن العديد من الأنشطة المنتظمة التي تتولاها مختلف الاقسام في المنظمة بطريقة منسجمة لضمان توافر أفضل العاملين وأفضل استخدام. هذا النظام يتبع من الادارة لتحقيق اقصى جودة للمخرجات وبأقل كلفة. رقابة كلفة الاجور تتضمن العمليات لتطوير مختلف أنشطة الاشكال والدراسات والسجلات وابداء الرأي من العاملين، احتساب المبلغ الصحيح من الاجور وعملية تسديدها في الوقت المناسب، كذلك تتضمن عمليات تحليل وقرار كلفة الاجور من الادارة في التخطيط واتخاذ القرار.

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.

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. هناك دائماً فرصة للغش في دفع

الاجور

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.

Wage Payment System, Its Importance And Essential Characteristics

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

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. نظام دفع الاجور هو الأسلوب المعتمد عن طريق التصنيع يكون له صلة بأجور العمال المعتمدة. هذه هي الطريقة لإعطاء تعويضات مالية للعمال للوقت والجهد المستثمر بها في تحويل المواد إلى منتجات تامة الصنع. فهذا دليل على أساس دفع مبلغ للعمال، والتي قد تكون إما على أساس الوقت أو على أساس الانتاج. اختيار نظام يعتمد على نوع وطبيعة القلق ومنتجاتها. أنظمة الدفع الأجر يمكن تقسيمها إلى نظامين رئيسيين على النحو التالي.

1. Piece rate system نظام معدل الاجر على القطعة

2. Time rate نظام معدل الاجر على الوقت

Importance Of Wage Payment System

اهمية نظام دفع الاجور

The amount of wages paid to the workers is one of the major elements of cost. It has a great bearing on the cost of production and profitability of the concern.

Hence, every concern is required to adopt a fair system of wage payment.

مبلغ الأجور المدفوعة للعمال هي واحدة من العناصر الرئيسية من حيث التكلفة. لديها تأثير كبير على تكلفة الإنتاج والربحية وتبعث على القلق. وبالتالي، تتطلب اعتماد نظام عادل لدفع الأجور.

The importance of wage payment system can be summarized as follows:

* Wage payment system facilitates the preparation of wage plan for future.

نظام الدفع الأجر يسهل إعداد خطة للأجر في لمستقبل.

* Wage payment system helps to determine the cost of production and the profitability of the organization.

* Wage payment system determines the amount of earning of the workers and their living standards. نظام الدفع للأجر يحدد مقدار كسب العمال ومستوى معيشتهم.

* Wage payment system affects the interest and attitude of the workers.

* نظام دفع الأجور يؤثر على الفائدة وموقف العمال.

* Wage payment system determines the level of satisfaction of the workers and affects the rate of labor turnover.

* Wage payment system helps in recruiting skilled, experienced and trained workers.

نظام الدفع الأجر يساعده في تجنيد العمال المهرة، من ذوي الخبرة والمدربين.

* Wage payment system helps to increase the productivity and goodwill of the organization.. نظام دفع الأجر يساعده على زيادة الإنتاجية والنوايا الحسنة للمنظمة.

الخصائص الأساسية لنظام دفع الأجر الجيد

نظام دفع الأجر الجيد

A system of wage payment is satisfies employer and employee by fulfilling following criteria. نظام دفع الأجر واحد هو أن يرضي صاحب العمل والموظف من خلال تحقيق المعايير التالية.

- * Wage payment system should be fair and justifiable to the workers and organization.. * يجب أن يكون نظام دفع أجر عادل ومبرر للعمال والمنظمة.
- * Wage payment system should help in maximizing workers' satisfaction and minimizing labor turnover. * نظام دفع الأجر من شأنه أن يساعده في تحقيق أقصى قدر من رضا العمال وتقليل معدل دوران العمل.
- * Wage payment system should assure minimum guaranteed wages to all workers. * نظام دفع الأجر يجب ضمان الحد الأدنى للأجر مضمونة لجميع العمال.
- * Wage payment system should assure equal pay for equal work. * نظام دفع الأجر يجب ضمان الأجر المتساوي للعمل المتساوي.
- * Wage payment system should provide more wages to efficient and skilled workers.
- * Wage payment system should follow government policy and trade union's norms. * نظام دفع الأجر يجب أن يتبع سياسة الحكومة ومعايير النقابات.
- * Wage payment system should be simple and understandable to all the workers.
- * Wage payment system should help in improving performance and productivity of the workers.. * نظام دفع الأجر من شأنه أن يساعده في تحسين أداء وإنتاجية العمال.
- * Wage payment system should be flexible enough to suit the needs of the organization. * يجب أن يكون نظام دفع الأجر مرنة بما فيه الكفاية لتتناسب مع احتياجات المؤسسة.

نظام معدل القطعة في دفع الأجر، المزايا والعيوب

نظام معدل القطعة في دفع الأجر، 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 the workers by the worker . Piece rate system is the method of remunerating 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:

$$\text{Total Wages Earned} = \text{Output} \times \text{Piece Rate}$$

اجمالي الأجر المستحق = المخرجات * معدل القطعة

فوائد أو مزايا نظام معدل القطعة

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.

* 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.

* Piece rate system helps the management to determine the exact labor cost per unit
نظام معدل 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 سعر قطعة يقلل في تكلفة الوحدة من الإنتاج بسبب زيادة حجم التخفيض.

* Piece rate system requires less supervision cost.
* نظام سعر قطعة يتطلب كلفة إشراف أقل.

Disadvantages Of Piece Rate System العيوب في نظام القطعة

The following are the notable disadvantages of piece rate system

الآتي القصور أو العيوب في نظام معدل القطعة

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

نظام معدل القطعة لا يساعد في إنتاج مخرجات بجودة عالية من العمال ويركزون على الكمية بدلاً من 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 الإنتاج وجعله من الصعب منظم في جداول إنتاجية.

* It is very difficult to fix an acceptable and reasonable piece rate for each item of output or job.
من الصعب جداً إيجاد وجه مقارنة ومقبولية لمعدل القطعة لكل بند من المخرجات او العمل.

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

دخول نظام معدل القطعة يؤثر على صحة العمال أيضاً.

* It requires extra supervision cost for quality output and effective use of materials, tools and equipment.
يتطلب كلف اشراف اضافية لنوعية المخرجات وكفاءة استخدام المواد، الادوات. والمعدات.

Time Rate System Of Wage Payment, Its Advantages And Disadvantages نظام الاجر بالوقت لدفع الاجور، المزايا والقصور

نظام الاجر بالوقت لدفع الاجور، المزايا والقصور

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 الأجر التي تدفع للعمال على أساس الوقت الذي يقضيه في المصنع. في ظل هذا النظام، تدفع للعمال والموظفين الأجر على أساس الوقت الذي عملت بدلاً من حجم الإنتاج الذي كان قد عمل به. وبالتالي، وفقاً لهذا النظام، تدفع الأجر على أساس الساعة، أسبوعي أو شهري. ووفقاً للنظام المعدل الزمني، والأجر 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 فوائد نظام معدل 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.
- * 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.
- * 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 العاملين ويفضل من النقابات العمالية.

Disadvantages Of Time Rate System القصور في نظام معدل الوقت

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.

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. In India's industry, this method is most popular. Its other name is day wages system or time wok system.

We can calculate wages with following formula

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 fastly for getting more wages. This method is also called payment by result. وبموجب هذه الطريقة أو النظام، ويمكن للعمال الحصول على الأجر على أساس عملهم القيام به. وسوف لا تستخدم عنصر الوقت لحساب الأجر. المعدل هو أيضا على أساس كمية أو وحدة الحصول على مزيد من الأجر. ويسمى هذا الأسلوب أيضا الأجر بالإنتاج fastly المنتج. وبموجب

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 :

$$\begin{aligned} \text{Wages} &= \text{units produced} \times \text{rate per unit} \\ &= 2500 \times 3 = \$ 7500 \end{aligned}$$

Examples of the wages : 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:

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

$$\begin{aligned} &= (8 * 200) + (2 * 200 * 150 \%) \\ &= 1600 + 600 \quad \text{-----} \quad 2200 \end{aligned}$$

2- Work in process inventory	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) –
 غياب (Hours delay)

$$(4 * \$100) - 25 = \$375$$

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- goods in process inventory 350
 factory overhead 25
 Factory Payroll 37

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- goods in process inventory 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 \$600 and follows the details of his work during the month of April for the year 2010:

3 days of absence from work

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

Note that month, 30 days by 8 hours daily punctuated hour break and that the actual working days during the month is 22 days.

Required:

1. calculating the worker's wage payable
2. wage analysis
3. recording journal 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

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 الُصعب ربطها او تخصيصها بصورة مباشرة على وحدات المنتج النهائي وهي تكاليفُ تنفق في سبيل 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 التكاليف العام لمراكز 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.

يتطلب تطبيق نظرية مركز التكلفة في تحميل التكاليف العامة على وحدات الإنتاج اتباع الخطوات التالية:

- تحديد مراكز التكلفة (المواد ، الاجور ، أو كليهما)
- جرد وتقدير عناصر التكلفة العامة.
- تحميل التكاليف على مراكز التكلفة

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
2. التوزيع الثانوي

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 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، الطباية، تنظيف، تعويضات، رواتب المشرفين، بحث وتطوير، النقل الداخل والخزن، التشحيم.

2. تحديد الاساس لتوزيع التكاليف العامة وهناك عدة اسس:

- أ- قيمة الآلات والمباني لتوزيع الاندثار والتامين والتصليح والصيانة.
- ب- المساحة لتوزيع الايجار، الاضاءة، التدفئة والتبريد والتنظيف.
- ج- اجور العمال لتوزيع التامين على العمال، تعويضات العمال، مكافئاتهم.
- د- ساعات العمل لتوزيع تكاليف الطاقة، رواتب المشرفين، البحث والتطوير.
- هـ- قيمة المواد لتوزيع نقل للداخل، تكاليف الخزن والتامين على المواد الأولية.
- و- عدد الآلات لتوزيع تكاليف التشحيم والزيوت والفحص والصيانة.

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

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

-The Direct Method الطريقة المباشرة

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 ، ووفقاً 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 وفقاً لطبيعة الخدمة التي يؤديها مركز الخدمة.

- Step Down Method الطريقة 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 centers 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.

وفقاً لهذه الطريقة ، يتم توزيع تكاليف كل مركز خدمة على كل منتج المراكز ومراكز الخدمة 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 لأكثر 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 نسبياً توزع أولاً ثم التالي وتنتهي بتوزيع تكاليف آخر مركز خدمة على مراكز الإنتاج فقط.

- Reciprocal Method of Allocating Costs الطريقة التبادلية لتوزيع التكاليف

According to this method, the idea of mutual services between productive service centers is taken into account, and in light of this method, the costs of each service center are added to the cost of any services that benefited from the other service center. Service after adding and subtracting the cost of mutual services on production and service centers using the unilateral or regressive method.

بموجب هذه الطريقة تراعى فكرة الخدمات المتبادلة بين مراكز الخدمات الإنتاجية، وفى ظل هذه الطريقة يضاف إلى تكاليف كل مركز خدمات تكلفه إياه خدمات استفادت من مركز الخدمات الأخرى، وتطرح نفس التكلفة المتبادلة من تكلفة المركز الذي أفاد مراكز الخدمة تبادلياً ثم يتم توزيع صافى تكلفه كل مركز خدمه بعد إضافة وطرح تكلفة الخدمات المتبادلة على مراكز الإنتاج والخدمات باستخدام الطريقة الانفرادية أو التنازلية.

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

center	SERVICE center		PRODUCTION	
	Maintenance	PERSONNEL	MOULDING	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 statement the distribution of expenses in the total method and single method

The Total method:

Maintenance+ PERSONNEL

= (\$126,000 + \$24,000) → \$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

$(20,000 \div 50,000) * \$150,000 = \$60,000 =$

PRODUCTION center	SERVICE center			
	Maintenance	PERSONNEL	MOULDING	
Direct department costs	\$126,000	\$24,000	\$130,000	\$120,000
Distribution service center	<u>(126,000)</u>	<u>(24,000)</u>	<u>90,000</u>	<u>60,000</u>
	000	000	220000	
180000				

The single method

Maintenance \$126,000

•Total Machine-hours in production departments:

$$30,000 + 20,000 = 50,000$$

•Maintenance center cost allocated to moulding

$$= (30000/50000) * \$126000 = \$75000$$

•Maintenance center cost allocated to finishing

$$= (20,000 \div 50,000) * \$126,000 = \$50,400 =$$

PERSONNEL \$ 24000

Total Number of employees (40 + 30)= 70

PERSONNEL center cost allocated to moulding

$$= (40 \div 70) * \$ 24000 = \$13714$$

PERSONNEL center cost allocated to finishing

$$= (30 \div 70) * \$ 24000 = \$10286$$

	SERVICE center		PRODUCTION	
center	Maintenance	PERSONNEL	MOULDING	FINISHING
Direct center costs	\$126,000	\$24,000	\$130,000	\$120,000
Distribution Maintenance center (126,000)			75,600	50,400
Distribution PERSONNEL center		(24,000)	13714	10286
	0	0	219,314	180,686

Example 2: Smart company has four production center and three service center , the relating to a period are as under

	service department			Production department			
	power	Human recourses	Maintenance building	A	B	C	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

Required: prepare statement the distribution of expenses in the total method and single method

The Total method:

$$\text{Power+ Human recourses +Maintenance building} = (\$30,000 + \$10,000 + \$20,000)$$

$$\rightarrow \$60,0000$$

•Total Kw hours in production departments:

$$12000 + 18000 + 20000 + 50000 = 100,000$$

service center cost allocated to A center

$$= (12000/100000) * \$60000 = \$7200$$

(service center cost =

allocated to B

center

$$= (18000/100000) * \$60000 = \$10800$$

(service center cost =

allocated to C center

$$= (20000/100000) * \$60000 = \$12000$$

(service center cost =

allocated to D center

$$= (50000/100000) * \$60000 = \$30000$$

service department

Production department

	power	Human recourses	Maintenance building	A	B	C	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 single method

power \$30,000

•Total Kw hours in production departments:

$$12000 + 18000 + 20000 + 50000 = 100,000$$

Power center cost allocated to A center

$$= (12000/100000) * \$30000 = \$3600$$

(power center cost allocated to B center =

$$= (18000/100000) * 30000 = \$5400$$

Power center cost allocated to C center

$$= (20000/100000) * \$30000 = \$6000$$

Power center cost allocated to D center

$$= (50000/100000) * \$30000 = \$15000$$

Human recourses \$10000

•Total Number of employs in production departments:

$$30 + 10 + 20 + 40 = 100$$

Human recourses center cost allocated to A center

$$= (30/100) * \$10000 = \$3000$$

Human recourses center cost allocated to B center =

$$= (10/100) * \$10000 = \$1000$$

Human recourses center cost allocated to C center

$$= (20/100) * \$10000 = \$20000$$

Human recourses center cost allocated to D center

$$= (40/100) * \$10000 = \$4000$$

Maintenance building \$20,000

•Total Square feet in production centers:

$$5000 + 6000 + 4000 + 5000 = 20,000$$

Maintenance building center cost allocated to A center

$$= (5000/20000) * \$20000 = \$5000$$

Maintenance building center cost allocated to B center =

$$= (6000/20000) * \$20000 = \$6000$$

Maintenance building center cost allocated to C center =

$$= (4000/20000) * \$20000 = \$4000$$

Maintenance building center cost allocated to D center

$$= (5000/20000) * \$20000 = \$5000$$

	service department			Production department			
	power	Human recourses	Maintenance building	A	B	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

Example3 :

Centers	SERVICE_Centers		PRODUCTION	
	management	التجميع	maintenance	cutting summation
Direct Center costs	\$126,000	\$24,000	\$100,000	
	\$160,000			
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 service centers costs in the Step-Down method.

solution:

$$270 = (90 + 150 + 30) \text{ ---} \rightarrow 270$$

Step 1: service management

$$(\$126,000) (90 \div 270) = \$42,000 \text{ maintenance Center}$$

$$(\$126,000) (150 \div 270) = \$70,000 \text{ cutting Center}$$

$$(\$126,000) (30 \div 270) = \$14,000 \text{ summation Center}$$

Step 2:maintenance >>>> $(\$66,000) = (24000 + 42000)$

$$(\$66,000) (20000 \div 50000) = \$26,400 \text{ cutting Center}$$

$$(\$66,000) (30000 \div 50000) = \$39,600 \text{ summation Center}$$

	Service center		Production center	
	service management	maintenance	cutting	summation
Direct Center costs	\$126,000	\$24,000	\$100,000	\$160,000
Distribution of service management	(126000)	42000	70000	14000
Distribution of Maintenance center		(66000)	26400	39600
Total	0	0	196400	213600

Example 4:When selected and identify factory overhead elements of the reality of records and books of analytical materials and wages and expenses shows that there

are common elements that belong to more than one center were as follows:

Rent factory 5000
 power Dynamics 3000
 Heating and cooling 1000
 depreciation of buildings 2000
 insurance of employees 5000

If I know that the available data on the cost centers as follows:

	Production department				Service department	
	A	B	C	D	Maintenance machine	Maintenance building
Area m ²	200	400	300	600	200	300
Power machinery/kW	350	150	200	300		
Number of employees	150	50	150	100	30	20

Required:1-Determine the share of each Center of factory overhead elements.

2- prepare statement the distribution of expenses in the:

A- step down method and B- total method and C- single method.

Solution:1-

Rent factory $5000/2000 \div (200+400+300+600+200+300)$

$\$5000 \div 2000 = \$ /m 2.5$

Share A center of Rent factory $200 m * \$2.5 = \500

Share B center of Rent factory $400 m * \$2.5 = \1000

Share C center of Rent factory $300 m * \$2.5 = \750

Share D center of Rent factory $600m * \$2.5= \1500

Share main. Mach. center of Rent factory $200m * \$2.5 = \500

Share main. building center of Rent factory $300m * \$2.5 = \750

power Dynamics $\$3000 \div 1000 = \$3 /kw.... (350+150+200+300)$

Share A center of power Dynamics $350kw * \$3= \1050

Share B center of power Dynamics $150kw * \$3= \450

Share C center of power Dynamics $200kw* \$3= \600

Share D center of power Dynamics $300kw* \$3= \900

Heating and cooling $\$1000 \div 2000 = \0.5

$/m.....2000(200+400+300+600+200+300)$

Share A center of Heating and cooling $200 m * \$0.5 = \100

Share B center of Heating and cooling $400 m * \$0.5 = \200

Share C center of Heating and cooling $300 m * \$0.5 = \150

Share D center of Heating and cooling $600m * \$0.5= \300

Share main. Mach. center of Heating and cooling $200m * \$0.5 = \100

Share main. building center of Heating and cooling $300m * \$0.5 = \150
depreciation of buildings $\$2000 \div 2000 = \$1 / m$
 $..2000(200+400+300+600+200+300)$
 Share A center of depreciation of buildings $200 m * \$1 = \200
 Share B center of depreciation of buildings $400 m * \$1 = \400
 Share C center of depreciation of buildings $300 m * \$1 = \300
 Share D center of depreciation of buildings $600m * \$1 = \600
 Share main. Mach. center of depreciation of buildings $200m * \$1 = \200
 Share main. building center of depreciation of buildings $300m * \$1 = \300
insurance of workers $\$ 5000 \div 500 = \$ 10$ each work $500(150+50+150+100+30+20)$
 Share A center of insurance of employees $150 * \$10 = \1500
 Share B center of insurance of employees $50 m * \$10 = \500
 Share C center of insurance of employees $150 m * \$10 = \1500
 Share D center of insurance of employees $100m * \$10 = \1000
 Share main. Mach. center of insurance of employees $30m * \$10 = \300
 Share main. building center of insurance of employees $20m * \$10 = \200

	Production center				Service center	
	A	B	C	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
Maintenance building $\$1400$
 $1700 (200+400+300+600+200+0)$
 Share A center of Service center Maintenance building $(200 \div 1700) * \$1400 = \165
 Share B center of Service center Maintenance building $(400 \div 1700) * \$1400 = \329

Share C center of Service center Maintenance building $(300 \div 1700) * \$1400 = \247

Share D center of Service center Maintenance building $(600 \div 1700) * \$1400 = \494

Share main. Mach. center of Service center Main. building $(200 \div 1700) * 1400 = \165

Maintenance machine \$1100

Power machinery / kW 1000 $(350 + 150 + 200 + 300)$

Share A center of Service center Maintenance machine $(350 \div 1000) * \$1265 = \443

Share B center of Service center Maintenance machine $(150 \div 1000) * \$1265 = \190

Share C center of Service center Maintenance machine $(200 \div 1000) * \$1265 = \253

Share D center of Service center Maintenance machine $(300 \div 1000) * \$1265 = \379

	Production center				Service center	
	A	B	C	D	Maintenance machine	Maintenance building
Factory overhead	3350	2550	3300	4300	1100	1400
Distribution	165	329	247	494	165	(1400)
Maintenance building						
Distribution	443	190	253	379	(1265)	
Maintenance machine						
Total	3958	3069	3800	5173	0	0

Exercise: Below please factory for the manufacture of cloth data during the year ending on 31/12/2011

	Service center			Production center	
	maintenance	storage	Restaurant	Spinning الغزل	Fabric نسيج القماش
Area square meters	200	400	200	800	400

The number of workers	100	60	40	200	600
Value machines				60000	40000
Number of bills of exchange of materials	72			100	76
Working hours direct				8000	20000
Hours machines turnover				4000	6000
T. Work indirectly	5000	5000	4000	16000	10000
T. Materials indirectly	8000	7000	8000	7400	19600

If you know that industrial and other indirect costs were as follows:

The supervision of \$ 30,000 expenses, rent \$50,000.

. maintenance \$4000 lighting, insurance on the machines 10% of their value.

the required :

Procedure revealed the distribution of factory overhead costs using the Step-Down method.

Example:- A company has two services and two producing departments. The two service departments serve not only to producing departments but also to each other. The departmental estimates for the next year are as follows.

Producing departments:	
A	50,000
B	40,000
Service departments:	
X	10,000
Y	8,800
The service departments costs are to be distributed as under:	
Cost of X : 50% to A, 40% to B, and 10% to Y	
Cost of Y : 40% to A, 40% to B, and 20% to X	
Required:	
Transfer the service departments costs to each other and to producing departments.	

Solution:

Now we solve the given illustration first using the simultaneous equation method as follows:

Original costs of service departments:

$$X = \$10,000$$

$$Y = \$8,800$$

After getting the share from distribution of service departments:

$$X = \$10,000 + 20\% Y$$

$$Y = \$8,800 + 10\% X$$

By putting the value of Y in equation (1)

$$X = \$10,000 + 20\%(Rs.8,800 + 10\%X)$$

$$X = \$10,000 + 1760 + 0.2X$$

$$X - 0.02X = \$10,000 + Rs.1,760$$

$$0.98X = \$11,760$$

$$X = 11760 / 0.98$$

$$= \$12,000$$

By putting the value of X in equation (2)

$$Y = \$8,800 + 10\%(\$12000)$$

$$Y = \$8,800 + \$1,200$$

$$= \$10,000$$

Distribution Summary

Department	Producing		Service	
	A	B	X	Y
Original costs	50,000	40,000	10,000	8,800
Distribution of service department costs:				
X	6,000	4,800	(12,000)	1,200
Y	4,000	4,000	2,000	(10,000)
Total departmental overheads	60,000	48,800	Nil	Nil
	=====	=====	=====	=====

Example: Below please factory for the manufacture of cloth data during the year ending on 31/12/2012

	Production department		Service department	
	A	B	Maintenance mach.	Maintenance build.
Factory overhead	20200	30000	10800	21000
Center service ratio main. Mach.	% 45	% 40		% 15
Center service ratio main. Build.	% 40	% 50	% 10	

prepare statement the distribution of expenses in the Reciprocal Method. Required: solution :

Original costs of service departments:

X = \$10,800 Maintenance Mach.

Y = \$21,000 Maintenance build

After getting the share from distribution of service departments:

X = \$10,800 + 10% Y

Y = \$21,000 + 15% X

By putting the value of Y in equation (1)

X = \$10,800 + 10%(21000 + 15%X)

X = \$10,800 + 2100 + 0.015X

X - 0.015X = \$10,800 + 2100

0.985X = \$12,900

x = 12900 / 0.985

= \$13,096

By putting the value of X in equation (2)

Y = \$21,000 + 15%(\$13096)

Y = \$21,000 + \$1,964

= \$22964

Distribution Summary				
Department	Producing		Service	
	A	B	Maintenance mach.	Maintenance build
Original costs	20,800	30,000	10,800	21,000
Distribution of service department costs:				
X			(13,096)	1964

Y	5893	5239	2296	(22,964)
Total departmental overheads	9186	11482	-----	-----
	-----	-----	Nil	Nil
	35879	46721	=====	=====
	=====	=====		

Example 2: Smart company has four production center and three service center , the relating to a period are as under

	service department			Production department			
	power	Human recourses	Maintenance building	A	B	C	D
Factory overhead	30000	10000	20000	50000	40000	60000	90000
Kw hours	6000	5000	5000	12000	18000	20000	50000
Number of employs				30	10	20	40
Square feet	2000	1000	2000	5000	6000	4000	5000

Required: prepare statement the distribution of expenses in the step down method .

Power service center \$30,000

•Total Kw hours in production centers:

$$5000+5000+12000+18000+20000+50000 = 110,000$$

$$(5,000 \div 110,000) * \$30,000 = \$ 1364 \text{ share H.R center from power service center cost}$$

$$(5,000 \div 110,000) * \$30,000 = \$ 1364 \text{ share M. b. center from power service center cost}$$

$$(12,000 \div 110,000) * \$30,000 = \$ 3272 \text{ share A center from power service center cost}$$

$$(18,000 \div 110,000) * \$30,000 = \$4909 \text{ share B center from power service center cost}$$

$$(20,000 \div 110,000) * \$30,000 = \$5455 \text{ share C center from power service center cost}$$

$$(50,000 \div 110,000) * \$30,000 = \$ 13636 \text{ share Dcenterfrompower service center cost}$$

Maintenance building \$20,000+1364>>21364

•Total Square feet in production centers:

$$1000+5000+6000+4000+5000= 21,000$$

$$(1,000 \div 21,000) * \$20,000 = \$ 1017 \text{ share H.RcenterfromM.B service center cost}$$

$$(5,000 \div 21,000) * \$20,000 = \$ 5086 \text{ share A center from M.B service center cost}$$

$$(6,000 \div 21,000) * \$20,000 = \$6104 \text{ share B center from M.B service center cost}$$

$$(20,000 \div 21,000) * \$20,000 = \$4069 \text{ share C center from M.B service center cost}$$

$$(5,000 \div 21,000) * \$20,000 = \$ 5087 \text{ share D center from M.B service center cost}$$

Human recourses \$ 10000+1364+1017>>12381

•Total Number of employs in production departments:

$$30 + 10 + 20 + 40 = 100$$

$(30 \div 100) * \$12,381 = \$ 3714$ share A center from H.R service center cost

$(10 \div 100) * \$12,381 = \1218 share B center from H.R service center cost

$(20 \div 100) * \$12,381 = \2436 share C center from H.R service center cost

$(40 \div 100) * \$12,381 = \$ 4952$ share D center from H.R service center cost

	service department			Production department			
	power	Human recourses	Maintenance building	A	B	C	D
Factory overhead	30000	10000	20000	50000	40000	60000	90000
Distribution power service center	(30000)	1364	1364	3272	4909	5466	13536
Total	0	11364	21364	53272	44909	65466	108636
Distribution Maintenance building service center		1017	(21364)	5086	6104	4069	5087
Total	0	12381	0	58358	51013	69535	108723
Distribution Human recourses service center		(12381)		3714	1218	2436	4952
Total	0	0	0	62072	52231	71971	118675

Supervision expenses \$ 30,000 ÷ 40000 h = \$h 0.75 H. Work indirectly

40000(5000+5000+4000+16000+10000)

5000 H * \$H0.75= \$3750 share maintenance center from supervision expense

5000 H * \$H0.75= \$3750 share storagecenter from supervision expense

4000 H * \$H0.75= \$3000 share Restaurantcenter from supervision expense

16000 H * \$H0.75= \$12000 share spinning center from supervision expense

10000 H * \$H0.75= \$7500 share fabriccenter from supervision expense

Rent expenses \$50,000 ÷ 2000m² = \$m 25

Area square meters

2000(200+400+200+800+400)

200 m * \$m25= \$5000 share maintenance center from rent expense

m * \$m25= \$10000 share storage center from rent expense 400

m * \$m25= \$5000 share Restaurant center from rent expense 002

m * \$m25= \$20000 share spinning center from rent expense 008

400 m * \$m25= \$10000 share fabric center from rent expense

Lighting expenses \$4000 ÷ 2000m = \$m 2

Area square meters

2000(200+400+200+800+400)

200 m * \$m2 = \$400 share maintenance center from Lighting expense

400 m * \$m2 = \$800 share storage center from Lighting expense

2 00m * \$m2 = \$400 share Restaurant center from Lighting expense

8 00m * \$m2 = \$1600 share spinning center from Lighting expense

400 m * \$m2 = \$800 share fabric center from Lighting expense

insurance of the machines 10%

60000 * 10% = \$6000 share spinning center from insurance of the machines expense

40000 * 10% = \$4000 share fabric center from insurance of the machines expense

	Service center			Production center	
	maintenance	storage	Restaurant	spinning	fabric
c. Materials indirectly	8000	7000	8000	7400	19600
<u>Supervision expenses</u>	3750	3750	3000	12000	7500
Rent expenses	5000	10000	5000	20000	10000
Lighting expenses	400	800	400	1600	800
insurance of the machines				6000	4000
Total	17150	21550	16400	47000	41900

Restaurant \$16400 number of employees 1000(100+60+240+600)

\$16400 * (100 ÷ 1000) = \$1640 share maintenance center from Restaurant serv. Cent. cost

\$16400 * (60 ÷ 1000) = \$984 share storage center from Restaurant serv. Cent. cost

\$16400 * (240 ÷ 1000) = \$3936 share spinning center from Restaurant serv. Cent. cost

\$16400 * (600 ÷ 1000) = \$9840 share fabric center from Restaurant serv. Cent. cost

Storage \$ 21550+984=\$22534

Number of bills of exchange of materials 248 (72+100+76)

\$22534 * (72 ÷ 248) = \$6542 share maintenance center from storage serv. Cent. Cost

\$22534 * (100 ÷ 248) = \$9086 share spinning center from storage serv. Cent. cost

\$22534 * (76 ÷ 248) = \$6906 share fabric center from storage serv. Cent. cost

Maintenance \$ 17150+1640+6542 =\$25332

Hours machines turnover 10000(4000+6000)

\$25332 * (4000 ÷ 10000) = \$10133 share spinning center from maintenance serv. Cent. cost

\$25332 * (6000 ÷ 10000) = \$15199 share fabric center from maintenance serv. Cent. cost

	Service center			Production center	
	maintenance	storage	Restaurant	spinning	fabric
Factory overhead	17150	21550	16400	47000	41900
Distribution Restaurant	1640	984	(16400)	3936	9840
Total	18790	22534	0	50936	51740
Distribution storage	6542	(22534)		9086	6905
Total	25332	0	0	60022	58646
Distribution Maintenance	(25332)			10133	15199
Total	0	0	0	70155	73845

Absorption Costing Theory

نظرية التكاليف الممتصة (الاجمالية)

1. Absorption Costing Concept 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.

التكلفة الممتصة هي أساس جميع بيانات المحاسبة المالية ، وتُعرف أحيانًا باسم التكلفة الإجمالية (الكاملة). باستخدام تكلفة الامتصاص ، يتم استيعاب جميع التكاليف (المباشرة وغير المباشرة والمتغيرة 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

3. Sales Revenue ايراد المبيعات

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

or

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 **مخزون 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.

7. Total marking costs **تكاليف التسويق الاجمالية**

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.

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

9. Gross Profit **مجمل الربح**

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

Gross profit = sales revenue - total cost of goods sold

10. Net Profit **صافي الربح**

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 units

3- Production for the last year 90% of this year.

4- These data about the cost has available. (I.D)

Direct material	\$ 50
Direct labor	\$ 40
Variable Factory overhead	\$ 35
Variable Marketing cost	\$10
Fixed Factory overhead	\$ 1750000
Fixed Marketing cost	\$ 750000
Administrative cost	\$ 500000

Calculate

- 1- Sales revenue
- 2- 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

Solution

1- Sales Revenue = Sales Units * Sales Price
= 480000 * 250 = 120000000 (I.D)

Note: Sales units Calculate as:

Beginning inventory	20000
Production	500000
Ending inventory	(40000)

Sales Units 480000

2- Total cost of production year 2005:

Direct material	50 * 500000	= 25000000
Direct labor	40 * 500000	= 20000000
Variable Factory overhead	35 * 500000	= 17500000
Fixed Factory overhead		= 1750000

Total cost of production = 64250000

Or

50 + 40 + 35 = 125 Variable cost per units.

(125 * 500000) = 62500000 (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).

$$= 20000 * 128.889 = 2577780 \text{ (I.D.)}$$

Note: Total cost of per unit year 2004:

$$\frac{\text{Fixed F.O.H}}{\text{Production of the last year}} = \frac{1750000}{450000} = 3.889 \text{ (I.D.)}$$

$$3.889 + 50 + 40 + 35 = 128.889 \text{ (I.D.)}$$

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

$$= 40000 * 128.5 = 5140000 \text{ (I.D.)}$$

Note: Total cost of per unit year 2005:

$$\frac{\text{Fixed F.O.H}}{\text{Production of this year}} = \frac{1750000}{500000} = 3.5 \text{ (I.D.)}$$

$$3.5 + 50 + 40 + 35 = 128.5 \text{ (I.D.)}$$

4- Total Marketing Cost = Variable Marketing Cost + Fixed Marketing Cost.
 $= (10 * 480000) + 750000 = 5550000 \text{ (I.D.)}$

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

$$61687780 + 5550000 = 67237780 \text{ (I.D.)}$$

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

$$= 64250000 + 2577780 - 5140000 = 61687780 \text{ (I.D.)}$$

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

$$= 120000000 - 67237780 = 52762220 \text{ (I.D.)}$$

7- Net Profit = Gross profit - managerial cost.

$$52762220 - 500000 = 52262220 \text{ (I.D.)}$$

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
<u>Cost of goods sold</u>			
Direct material	Xx		
Direct labor	xx		
Variable F.O.H	xx		
Fixed F.O.H	<u>xx</u>	Xxx	
Total cost of production		<u>Xx</u>	
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)		<u>xx</u>	
Total marketing cost			
Total cost of goods sold			<u>(Xx)</u>
Gross profit			Xx
Managerial cost			<u>(Xx)</u>
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			120000000
<u>Total cost of goods sold</u>			
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)		61687750	
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

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.

Note: **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
Production	250000
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.

7- Net Profit

Net Profit = Contribution Margin – all fixed costs (F.O.H+ Marketing cost + Administrative cost).

$$10800000 - (1250000 + 750000 + 500000) = 8300000 \text{ (I.D).}$$

Note :- Fixed F.O.H per unit calculated as:

$$\text{Fixed F.O.H per unit} = \frac{\text{fixed F.O.H}}{\text{Production}}$$

$$X = \frac{1250000 \text{ (I.D)}}{250000} = 5 \text{ (I.D)}$$

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.

Solution

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 manufacturing		9450000	
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			(2500000)
Net profit			8300000

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 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 administrative expense 35000, 15000

Prepare income statement using: (1) absorption costing (2) variable costing.

Solution

1- Total factory overhead

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 = 1200000

3- Fixed cost per unit = $\frac{540000}{10000} = 54$

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 inventory		0	
Variable cost of unit a variable for sale		396000	
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:

	<u>2001</u>	<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
For year 2001 Absorption costing

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 good sold			4036000
Gross profit			3464000
Administrative cost			(20000)
Net profit			3444000

Solution (2)

Income Statement for Noor Corporation
For year 2001 variable costing

Data			
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 (manufacturing)		3750000	
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 (manufacturing)		2850000	
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.

Sales, 40 units @ \$100	\$4,000
Production costs, 60 units	
Direct material 60 @ \$20	1200
Direct labor, 60 @ \$10	600
Variable factory overhead, 60@ \$6.....	360
Fixed factory overhead, 60@ \$4.....	240
Operation expenses	
Variable, 40 @ \$5	200
Fixed, 40@ @3.....	120

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

Direct labor200,000

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 direct 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:

Material\$60,000

Direct labor60,000

Factory overhead:

Variable costs120,000

Fixed cost96000

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

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 2018:

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.

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 صناعات الاوامر الانتاجية، يتم انتاج العمل 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 امر
- 2 - تمكن الإدارة من الكشف عن الاوامر المريرة اكثر والغير مريرة.
- 3 - يوفر أساساً لتحديد تكلفة الوظائف المماثلة التي يتم اتخاذها في المستقبل.
- 4 - يساعد الإدارة في التحكم في التكلفة ومقارنة التكلفة الفعلية بالتكلفة المقدرة.

اجراءات الاوامر الانتاجية Job costing procedure

The following steps ate taken in jobs costing.

- 1-job number . رقم الامر .
- 2-Production order. الامر الانتاجي
- 3-Job cost sheet. ورقة الامر الانتاجي

Job cost sheet

Customer _____
 Date commencement _____

job No _____
 date of completion _____

Material cost			Labor cost					factory over head		
Date	Material	Amount I.D	Date	Hours	Rate	Amount I.D	dep	hours	Rate	am
	Total									

cost of job
order

Material _____
 Labor _____
 Factory overhead _____
 Administration overhead _____
 Selling overhead _____

1-Direct cost : it
means

Total cost _____

a-Direct
materials
b- Direct

wages

2-In Direct cost : it means

a- In Direct materials b-In Direct wages c-In Direct expenses.

The Direct cost and in direct cost in all cost centers are total Ned to give the total cost

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

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 applied ****

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 information 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

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	_____

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

Solution

Supposed overhead	2500	3500	4000	10000
Supposed cost	8000	8000	14000	30000

Example 3

From the following information prepare job cost sheet for the year ended 2007

Particular	job No 1	job No 2	job No 3	amount
Direct materials	2000	1000	3000	6000
Direct wages	1500	2000	4000	7500

The overhead cost laded by 150% from direct materials

Solusion

Direct materials	2000	1000	3000	6000
Direct wages	1500	2000	4000	7500
Prime cost	3500	3000	7000	13500
Supposed overhead	3000	1500	4500	9000
Supposed cost	6500	4500	11500	22500

Example(4):- 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:

	Itis1 ,	2
Direct materials	\$4000	\$ 5000
Wages directly	\$ 8000	\$ 6000

The wage rate at \$2/hour and the rate of loading additional costs of \$ 3/hour
 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.

Solution :- work cost card 1

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

$\$ 8000 / \$ h 2 = 4000$ hour

$4000 \text{ hour} * \$ h 3 = \$ 12000$ 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

$3000 \text{ hour} * \$ h 3 = \$ 9000$ 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

rent of plant 2100

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
 - 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:

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>	<u>Job2</u>	<u>Job3</u>	<u>Total</u>
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, 2012, finished during January, and 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 income statement 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.

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 وفقاً 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 استخداماً ، فهي تمثل نوعاً من إجراءات تقدير التكاليف لصناعات الإنتاج الضخم التي تنتج منتجات قياسية.

الصناعات التي تستخدم تكاليف العملية هي الورق ، والصلب ، والمواد الكيميائية ، والمنسوجات ، وتكرير الزيت ، ومطاحن الدقيق ، وصناعة الأغذية ، ومنتجات الحليب ، وأعمال السكر إلخ

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- each process account debited with materials cost labor cost 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 والمصروفات 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:

1. تجميع المواد والعمالة والتكاليف الصناعية غير المباشرة من قبل الأقسام.
2. تحديد تكلفة الوحدة لكل قسم.
3. تحويل التكاليف من قسم إلى آخر.
4. 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 الإنتاج بداية المدة + الوحدات التي تم البدء بها أو منقولة إليها = الوحدات المنقولة للخارج +
الوحدات التامة + الوحدات التي مازالت 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 ***

B -transferred Process A/C to another :

Process NO () A/C ***

Process NO () A/C ***

C- transferred the last Process A/C :

 Stores control of finished good ***

 Process NO () A/C ***

And :

 Cost of sales ***

 Stores control of finished good ***

And :

 Sales Revenue ***

 Cost of sales ***

Example 1:- 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	1,500
Units started in process	<u>5000</u>
Units available	6,500
Units still in process	1,000
Units transferred to Department B	<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** 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 2:- The following data related to the activities of Department A during the month of May:-

Beginning work in process	8,000 Units
(100% complete as materials 70% complete as to conversion costs)	
Goods started in process	86,000
Units transferred to Dept. B	80,000
Units completed and on hand	4,000
Ending work in process	10,000
(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:-

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

(2) FIFO 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 FIFO, 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 3:- Using the same data as in Example 2, we compute the equivalent production for Department A under the FIFO method follows:-

	<u>Materials</u>	<u>Conversion costs</u>
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 Inventory units		
Materials	(0%)	0
Conversion costs (30%)	-----	<u>2,400</u>
	76,000	78,400
Ending Inventory units Completed		
materials (100%)	10,000	
Conversion costs (60%)	.	<u>6,000</u>
	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>	<u>Conversion Units</u>
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%)		<u>(5,600)</u>
Equivalent production F.I.F.O costing	<u>86,000</u>	<u>84,400</u>

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

تقرير تكلفة الإنتاج

يوضح تقرير تكلفة الإنتاج جميع التكاليف المحملة على القسم أو مركز التكلفة للفترة. نظرًا لأن الهدف الرئيسي هو التحكم في التكاليف ، فيجب تقديم بيانات مفصلة تتعلق بالتكاليف الإجمالية والوحدة. عادةً ما يتم إجراء تقسيم التكلفة حسب عناصر التكلفة لكل قسم (أو مركز تكلفة). يعد هذا التقرير أيضًا مصدرًا جيدًا لإدخالات دفتر اليومية الموجزة في نهاية الشهر.

يحتوي تقرير تكلفة الإنتاج بشكل عام على أربعة أقسام: الكميات يوضح هذا القسم التدفق المادي للوحدات داخل وخارج القسم.

الإنتاج المكافئ يوضح هذا القسم مجموع: -

(1) لا تزال قيد المعالجة من حيث الوحدات المكتملة

(2) إجمالي الوحدات المكتملة بالفعل.

تكاليف المحاسبة لهذا القسم تمثل التكاليف المتكبدة التي كانت: -

(1) قيد المعالجة في بداية الفترة

(2) منقول من الإدارات السابقة

(3) مضافة من قبل القسم

التكاليف المحتسبة لهذا القسم حسابات التصرف في التكاليف المحملة على القسم. وهذه التكاليف هي:

(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 4:- 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) 1,500

Started in process 5,000

Transferred to Dept. B 5,500

Ending work in process (100% complete as to materials:-

60% complete as to conversion costs) 1,000

Costs in Beginning inventory

Materials \$1,680

Labor 1,400

Overhead 1,120

Cost Added during 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)	<u>1,000</u>
Total units for accounted	<u><u>6500</u></u>

2) Equivalent production

	<u>Materials</u>	<u>Conversion costs</u>
Transferred to next department	5,500	5,500
-Beginning inventory (total)	<u>1,500</u>	<u>1500 .</u>
	4,000	4000
+Amount needed to complete beginning inventory (1/3)	<u>0</u>	<u>500 .</u>
	4,000	4,500
+Ending inventory	<u>1,000</u>	<u>600 .</u>
Equivalent production	<u><u>5,000</u></u>	<u><u>5,100</u></u>

3) Costs to Account for

	<u>Total Cost</u>	<u>Unit Cost</u>
Work in process, Beginning Balance	<u>\$4,200</u>	
Costs Added during month		
Materials	\$10,000	2,000(a)
Labor	8,500	
1.667(b)		
Factory overhead	<u>6,800</u>	<u>1.33(c)</u>
Total costs added	<u>\$25,300</u>	<u>\$5,000</u>
Total costs to Account for	<u><u>\$29,500</u></u>	

Computations Unit Costs

- (a) Materials: $\$10,000/5,000 = \$2,000$
 (b) Labor: $\$8,500/5,100 = \1.666
 (c) Overhead: $\$6,800/5,100 = \1.333

4) Costs Accounted for

Transferred to next Department		
From Beginning Inventory (1500 Units)		
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		<u>\$5,700</u>
From current production;		
Units started & completed (4000 units * \$5.00)		<u>20,000</u>
Total cost (beg + started and completed)		<u>25,700</u>
Work in process, Ending (3/5 completed):		
Materials (1000 * \$2.00)	2,000	
Processing costs ($1000 * 3.00 * 3/5$)	<u>1,800</u>	<u>3,800</u>
Total costs Accounted for		<u>\$29,500</u>

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

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>	<u>6,100</u>

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 units transferred to next department :
 (5500 * 4.71823) 25950

Cost of work in process, end. inventory		
Material	1000 * 1.7962 =	1797
Labor	60% * 1000 * 1.62295 =	974
F.O.H	100% * 1000 * 1.29836 =	779
		<u>3550</u>
		29500

Exercises

Exercise(1): 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 /12 2008 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