

COST ESTIMATION

AUTCE301

Estimate the cost

Competence

RTQF Level: 3

Learning hours:



30

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Sector: ALL

Sub-sector: ALL

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Purpose statement

This module describes the skills and knowledge required to prepare a small budget. They can keep basic business financial records.

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Learning Unit 1- Examine work

LO 1.1 Determine the work extent

- **Content/Topic 1 Determination of dimension**

Introduction:

Before understanding the definition of this module, it is necessary to explain the three key words:

- a) **Cost:** It is a calculated value of what is used to produce something.
- b) **To estimate:** An approximate or inexact value of something used to produce another.
- c) **Cost estimation:** This is a study of how to measure the value of input used to have the output.

✓ **Length:** is describing how long something is. Length can also refer to an extent of time or a measure of distance. The most common unit for measuring length is the meter (m).

✓ **Width:** is describing how wide an object is.

✓ **Thickness:** is the state or quality of being thick.

✓ **Accuracy**

The accuracy of a method of estimating the surface dimension refers to how small a difference there is between the true dimension and the average estimate provided by that method.

What is the accuracy of an estimate?

Since a cost estimate is the approximation of the cost of a project or operation, then estimate accuracy is a measure of how closely the estimate is able to predict the actual expenditures for the project or operation.

✓ **Clearness** the state of being clean, or the practice of keeping things clean

✓ **Completeness**

A cost estimate is the approximation of the cost of a program, project, or operation. The cost estimate is the product of the cost estimating process. The cost estimate has a single total value and may have identifiable component values.

Types of cost estimating

Various projects and operations have distinct types of cost estimating, which vary in their composition and preparation methods.

Some of the major areas include:

- ✓ Construction cost (i) detailed construction estimate (ii) abstract construction estimate
- ✓ Manufacturing cost
- ✓ Software development cost
- ✓ Aerospace mission cost

- ✓ Facility operation cost
- ✓ Facility maintenance and repair cost
- ✓ Facility rehabilitation and renewal cost
- ✓ Facility retirement cost

Estimating can be defined as the act of approximating the worth (or cost), extent, quantity, quality, or character of a future action, event, or product based on data or information available at the time.

This cost estimation will depend upon to the time taken to perform the work task.

LO 1.2 Scrutinize the complexity of the work

- **Content/Topic 1 Analysis of complexity of the work**

We all know intuitively that some jobs are more complex than others. However, most of us lack a universal way of measuring and, thus, articulating what makes one job more complex than another.

- ✓ **Shape:** the particular physical form or appearance of something (Materials to be used in the work).
- ✓ **Accessories :**

When the work is complicated automatically, the cost will be high or elevated. Means that this cost estimation will depend upon to the complication of the work to be performed.

LO 1.3 Localize the working place

- **Content/Topic 1 Working location**

- ✓ **Indoor location**

Indoor activities are carried out inside a space. They are limited to the conditions of the place where they are held, to the number of people participating in the activities, among other factors. Outdoor activities are carried out in an outdoor space. It can be a green space on a property or in contact with nature.

- ✓ **Outdoor location**

When the task to be performed is so far away the cost will be increased while when the task to be performed is near by the cost must be reduced.

Often people say that location is the most important thing for a business in cost estimating. Then, the most important things is... location. And so on. There are many different reasons why location is important to a business and attracting the right staff is one of them and right cost estimation. For many people the work location is an important criteria when searching for jobs and determining the cost to charge customers.

LO 1.4 Determine the work duration

- **Content/Topic 1 Steps of work duration determination**

✓ **Time of each task**

Work duration is the period of time that a person spends at paid labor. And in cost estimation we have to take in consideration work duration according to the standard. Means that when to perform any work takes long time, the cost will be high but when it takes short time the cost will be low.

✓ **Determination of concurrent tasks**

How to schedule concurrent project tasks

1. Get an overview of everything. When dealing with a hectic schedule of various, simultaneous tasks, the first thing...
2. Collaborate with your team. Collaborating with your team is a great way to prioritize and organize your concurrent.

✓ **Total time**

How do you calculate time and work?

In most of the problems on time and work, either of the following basic parameters are to be calculated:

If a person can do a piece of work in 'm' days, he can do $(1/m)$ part of the work in 1 day. Example 1: Ram will do a piece of work in 15 days, what part of work will he do in two days? and in 2 days, of the work will be done.

Learning Unit 2- Determine required resources

LO 2.1 Quantify materials

- **Content/Topic 1 Identification of materials**

Type of materials

The manufacture of products or goods required material as the prime element. In general, these materials are divided into two categories. These categories are **direct materials** and **indirect materials**.

Direct materials cost the cost of direct materials which can be easily identified with the unit of production. For example, the cost of glass is a direct materials cost in light bulb manufacturing.

Direct materials are also called productive materials, raw materials, raw stock, stores and only materials without any descriptive title.

Indirect materials costs are costs that are not directly accountable to a cost object (such as a particular project, facility, function or product). Indirect costs may be either fixed or variable. Indirect costs include administration, personnel and security costs. These are those costs which are not directly related to production.

Steps to estimate the direct material costs:

1. Find the total amount to be produced. This is usually noted as the order size.
2. Calculate the total amount of raw materials required to produce the order size.
3. Multiply that amount by the cost associated with the raw materials.

4. If there is a waste or scrap, its cost should be added to the costs in step 3.
5. If the waste or scrap can be sold at salvage value, this value should be subtracted from the costs in step 4.

Direct materials cost Vs Indirect materials cost

Direct materials costs are directly attributable to the object. In construction, the costs of materials, labor, equipment, etc., and all directly involved efforts or expenses for the cost object are direct costs. In manufacturing or other non-construction industries the portion of operating costs that is directly assignable to a specific product or process is a direct cost. Direct costs are those for activities or services that benefit specific projects, for example salaries for project staff and materials required for a particular project.

Indirect materials costs are not directly attributable to a cost object. Indirect costs are typically allocated to a cost object on some basis. In construction, all costs which are required for completion of the installation, but are not directly attributable to the cost object are indirect, such as overhead. In manufacturing, costs not directly assignable to the end product or process are indirect. These may be costs for management, insurance, taxes, or maintenance, for example. Indirect costs are those for activities or services that benefit more than one project.

- **Content/Topic 1 Quantities of materials in terms of size and shape**

- ✓ **Measurements**

Measurement is a process of finding a number that shows the amount of something.

Each unit is considered to be dimensionally independent of the others. These dimensions are measurements of **length, mass, time, electric current, temperature, amount of a substance, and luminous intensity**.

LO 2.2 Identify the quality of materials

- **Content/Topic 1 Quality of material needed**

- ✓ **Specification of material**

A specification often refers to a set of documented requirements to be satisfied by a material, design, product, or service or A specification is often a type of technical standard.

There are different types of technical or engineering specifications (specs), and the term is used differently in different technical contexts. They often refer to particular documents, and/or particular information within them. The word specification is broadly defined as "to state explicitly or in detail" or "to be specific".

A **requirement specification** is a documented requirement, or set of documented requirements, to be satisfied by a given material, design, product, service, etc. It is a common early part of engineering design and product development processes, in many fields.

A specification may refer to a standard which is often referenced by a contract or procurement document, or an otherwise agreed upon set of requirements (though still often used in the singular). In any case, it provides the necessary details about the specific requirements.

A design/product specification does not necessarily prove a product to be correct or useful in every context. An item might be verified to comply with a specification or stamped with a specification number: this does not, by itself, indicate that the item is fit for other, non-validated uses. The people

who use the item (engineers, trade unions, etc.) or specify the item (building codes, government, industry, etc.) have the responsibility to consider the choice of available specifications, specify the correct one, enforce compliance, and use the item correctly. Validation of suitability is necessary.

✓ **Description of material**

A material is defined as a substance (most often a solid, but other condensed phases can be included) that is intended to be used for certain applications. There are a myriad of materials around us they can be found in anything from buildings to spacecraft.

On the basis of chemistry and atomic structure, materials are classified into three general categories:

- ✓ **Metals.** Metal is a material (usually solid) comprising one or more metallic elements (e.g., iron, aluminum, copper, chromium, titanium, gold, nickel), and often also nonmetallic elements (e.g., carbon, nitrogen, oxygen) in relatively small amounts.
- ✓ **Ceramics.** A ceramic is a solid material comprising an inorganic compound of metal, non-metal or metalloid atoms primarily held in ionic and covalent bonds. Common examples are earthenware, porcelain, and brick. In nuclear industry, uranium dioxide is a ceramic refractory uranium compound, in many cases used as a nuclear fuel.
- ✓ **Polymers.** Polymers are compounds (macromolecules) composed of carbon, hydrogen, and other nonmetallic elements. Some cost estimation will depend upon to the size and shape of material to be used when performing any work.

LO2.3 Determine human resources

• **Content/Topic 1 Factors for human resource determination**

Human resource planning

The first step in the staffing process involves human resource planning. Human resource planning begins with a **job analysis** in which descriptions of all jobs (tasks) and the qualifications needed for each position are developed. A **job description** is a written statement of what a jobholder does, how it's done, and why it's done. It typically portrays job content, environment, and conditions of employment. The job specification states the minimum acceptable qualifications an incumbent must possess to perform a given job successfully. It identifies the knowledge, skills, and abilities needed to do the job effectively.

✓ **Variety of tasks**

The different types of tasks are:

Paid Tasks: Let's call these "Capital-T" Tasks.

Qualifiers: Qualifiers test your ability to perform a task.

Quizzes: Quizzes teach and test your knowledge for a specific project.

Guides: Guides are designed to help you learn about Spare5 tools and tasks.

- ✓ **Extent of work** is the range over which the work extends or is the amount of space or surface that something occupies or the distance over which it extends.

- ✓ **Duration of work**

Duration is a time in which something continues and work is a physical or mental effort to achieve a goal.

Work done can be seen physically but duration cannot be seen physically. Human resources and their costs is needed to plan for how the cost of work performed must be estimated depending upon to the employees or workers used to accomplish it.

Human resources are the people who make up the workforce of an organization, business sector, or economy. "Human capital" is sometimes used synonymously with "human resources", although human capital typically refers to a more narrow view (i.e., the knowledge the individuals embody and economic growth). Likewise, other terms sometimes used include "manpower", "talent", "labor", "personnel", or simply "people".

A Human Resources Manager has several functions in a company:

- ✓ Determine needs of the staff.
- ✓ Determine to use temporary staff or hire employees to fill these needs.
- ✓ Recruit and train the best employees.
- ✓ Supervise the work.
- ✓ Prepare employee records and personal policies.
- ✓ Manage employee payroll, benefits and compensation.
- ✓ Ensure equal opportunities.
- ✓ Deal with performance issues.
- ✓ Ensure that human resources practices conform to various regulations.
- ✓ Push the employees' motivation.

Managers need to develop their interpersonal skills to be effective. Organizations behavior focuses on how to improve factors that make organizations more effective.

- **Content/Topic 1 Proper determination of human resource required**

Estimating repair cost

The estimate, also called a damage report or damage appraisal calculates the cost of parts, materials, and labor for repairing a collision damaged vehicle. Developed by the estimator and equipment available, it is a handwritten or printed summary of the collision repairs needed. The estimate lets the customer, insurance company shop management, and technician know what must be done to repair a vehicle.

Estimates must be accurately written. Repair costs are a major consideration for both the owner and the collision repair shop. The profit margins for a collision repair shop depend heavily on the accuracy of estimates. Insurance companies can also write their own estimates.

The **car internal costs** are all the costs consumers pay to afford owning and running a car. Normally these private expenditures are divided by fixed or standing costs and variable or running costs. Fixed

costs are those ones which do not depend on the distance travelled by the vehicle and which the owner must pay to keep the vehicle ready for use on the road, like insurance or road taxes. Variable or running costs are those which depend on the use of the car, like fuel or tolls.

Compared to other popular modes of passenger transportation, especially buses or trains, the car has a relatively high cost per passenger-distance travelled.

Standing cost

Depreciation cost

The yearly depreciation of a car, is the amount of a financial quantity, the car value decreases every year. Normally this value is correlated with the price a certain car has on the market, but on average a car has a depreciation around 15% to 20% per year. Depending on market conditions, cars may depreciate between 10-30% the first year.

Car taxes

Car taxes, road taxes, vehicle taxes or Vehicle Excise Duty are the amount of money car owners pay to the state or to certain regional government within a country, normally yearly, to allow the car to circulate within that region or state. These taxes serve, theoretically according to the respective legal provisions, either to maintain the roads and all the correspondent infrastructures or to compensate the negative externalities caused by the motor vehicles. These taxes normally depend on CO2 emissions, the engine displacement of the vehicle motor, the vehicle weight or on some percentage of the car value.

Insurance

The Insurance serves to provide financial protection against physical damage and/or bodily injury resulting from traffic collisions and against liability that could also arise there-from. The prices may largely vary depending on the coverage levels and in Rwanda, the payment frequency normally is made by trimester, semester or by year. In USA, payments are normally made monthly. In countries such as Spain, Germany and England it is possible to contract an insurance by days.

Inspection

Vehicle inspection is a procedure mandated by national or subnational governments in many countries, in which a vehicle is inspected to ensure that it conforms to regulations governing safety, emissions, or both. Normally these inspections are made annually and the price varies depending on the region.

Car finance

The subject of car finance comprises the different financial products which allows someone to acquire a car with any arrangement other than a single lump payment. When used, and for the purpose of assessing the private financial costs, one must consider only the interests paid by the car owner, as some part of the amount the owner pays each month for the finance is already embedded in the depreciations costs.

Cost of capital

The cost of capital, applied to a purchase of a car, is the amount of money the car owner could have obtained, if they, instead of buying the car, applied that amount of money to other worthy investment.

The cost of capital is the rate of return that capital could be expected to earn in an alternative investment of equivalent risk. Considering by default the car has depreciation, and that such depreciation is already considered at a certain cost item, the cost of capital of owning a car, is then the income that the car owner could have obtained with the money spent on such car. One example could be a common standard interest rate in a deposit account.

Running cost

Fuel cost

The fuel costs depend basically on four factors, namely the distance travelled by the car, the price paid for the fuel, the energy efficiency of the car and the type of driving. In Western countries, this cost normally is the second highest after depreciation.

Maintenance cost

The maintenance of a car can have the purpose to be a long term or a short term maintenance. This cost might be very irregular and somewhat unpredictable but tends to increase with the age of the car. On this item are included car parts that need to be replaced after a certain period of time (for example every two years) or with a specific number of travelled kilometers or miles, like tires or filters.

Repairs and Improvements

Repairs costs are completely unpredictable because they depend on the number and severity of car collisions, like dents repairing for example. These costs also refer to spare parts substitution due to malfunctioning. On this cost item it might be included also the parts bought to improve the performance or the aesthetic of the vehicle.

Parking

The costs of parking include all the money the user needs to pay to park their car. This applies normally to car parking lots, like in offices, public buildings, shopping centers or in the downtown; but also on the public space (normally in the inner part of some city) using parking meters. This cost might be relatively predictable, if the user for example has a monthly contract with some parking lot company, or if they rent a private parking space.

Tolls

A toll road, also known as a turnpike or tollway, is a public or private roadway for which a fee (or toll) is assessed for passage. Normally this applies to motorways, bridges and tunnels but it might also apply, like in some cities such as London or Stockholm, to gain access to the city-Centre. This cost might be predictable if the user passes the tolled roadway, a defined number of times per month.

Fines

A traffic fine or traffic ticket is a notice issued by a law enforcement official to a motorist accusing violation of traffic laws. Traffic tickets generally come in two forms, citing a moving violation, such as exceeding the speed limit, or a non-moving violation, such as a parking violation. These tickets almost always imply the payment of a certain quantity of money. This cost might be completely unpredictable, but one way for the user to assess it, is to calculate per year the total money spent in fines, in the last few years.

Car washes

The cost of car wash varies according to the frequency users wash their car, and with the price of each wash, that normally depend on the type of washing.

. Explain the general purpose of damage estimates.

Estimates must be accurately written. Repair costs are a major consideration for both the owner and the collision repair shop. The profit margins for a collision repair shop depend heavily on the accuracy of estimates. Insurance can also write their own estimates.

To understand computer-based estimating, you must first understand how a handwritten estimate is done. Basically a handwritten estimate involves using a pen and paper", or a printed form to list all of the information needed to calculate and bill the customer or insurance company for doing the repairs. Before any decision involving the repair of a damaged vehicle can be made, a detailed repair estimate must be calculated and printed. All of the parts and procedures that must be completed are listed on the estimate. Then part prices and labor charges can be tabulated.

Although printed estimating guides are still used in the industry the trend is to use computer-based estimating tools .

Before writing the formal damage report, preliminary information that identifies the owner of the vehicle and who will pay the bill must be obtained. This includes the VIN, make, year, body style or type, license plate number, mileage, and date.

. Manually and electronically prepare an estimate

Cost estimating software is computer software designed for contractors to estimate costs for a specific project or repair work. An cost estimator will typically use estimating software to estimate their price for a project or repair work, which will ultimately become part of a resulting repair contract. Some shops or insurance companies, and others may also use cost estimating software to prepare cost estimates for purposes other than bidding.

In software cost estimation, a lot of effort can be wasted in gathering information and making estimates on items that have no relevance to the need for the estimate. For example, in one situation, an extremely detailed conversion estimate was made to support a decision on whether or not to upgrade to a different make of computer. The decision required only a general estimate of conversion costs, and when it was decided not to go to a different make of computer, a great deal of hard work and careful analysis was thrown out. Thus, it is extremely important to establish the objectives of the cost estimate as the first step, and to use these objectives to drive the level of detail and effort required to perform the subsequent steps.

Below are some examples of specifications cost estimation softwares:

- ✓ The cost estimation software shall provide interfaces with the appropriate subsystems.
- ✓ The cost estimation software shall degrade gracefully under stress.
- ✓ The cost estimation software shall be developed in accordance with good development standards.
- ✓ The cost estimation software shall provide the necessary processing under all modes of operation.
- ✓ Computer memory utilization shall be optimized to accommodate future growth.

- ✓ The software shall provide a 99.9999% assurance of information privacy (or reliability, availability, or human safety).
- ✓ The cost estimation software shall provide accuracy sufficient to support effective flight control.
- ✓ The cost estimation software shall provide real-time response to sales activity queries.

Spreadsheet

Cost estimators used columnar sheets of paper to organize the take off and the estimate itself into rows of items and columns containing the description, quantity and the pricing components. Some of these were similar to accounting ledger paper. They became known as green sheets or spreadsheets.

With the advent of computers in business, estimators began using spreadsheet applications like **VisiCalc**, **Lotus 1-2-3**, and **Microsoft Excel** to duplicate the traditional tabular format, while automating redundant mathematical formulas.

Many cost estimators continue to rely primarily upon manual methods, hard copy documents, and/or electronic spreadsheets such as Microsoft Excel. While spreadsheets are relatively easy to master and provide a means to create and report a cost estimate and or cost models, their benefit comes largely from their ability to partially relieve estimators of calculations. Accuracy, however, is not necessarily improved and productivity is not maximized. For example, data entry remains tedious and prone to error, formula errors are common, and collaboration and information sharing are limited.

As cost estimators came to rely heavily on spreadsheets, and the formulas within the spreadsheets became more complex, spreadsheet errors became more frequent. These were typically formula errors and cell-reference errors which would often lead to cost overruns. As a result, cost estimating software applications were originally created to overcome these errors by using hard-coded formulas and data structures. Other benefits include the use of reference databases for costs and other data, predictable and professional looking reports, speed, accuracy, and overall process standardization.

As cost estimating programs became more and more popular over the years, more advanced features, such as saving data for reuse and trade-specific calculations, have become available. For example, programs that are designed for building construction include libraries and program features for traditional builders. In sharp contrast, programs that are designed for civil construction, include libraries and program features for roadway, utility, and bridge builders.

All parts that need to be replaced or repaired must be identified. A detailed description of all the labor operations that must be performed with a listing of parts and materials needed to make the necessary repairs can then be prepared.

A copy of the estimate is then given to the customers; Estimate information-pricing of labour, parts and materials, and their totals-is then compared to estimates from competing body shops. A written estimate is needed to prevent any misunderstanding between the shop, the insurance company and the vehicle owner.

At least three copies of the written estimate should be made. One is kept by the shop, one is given to the insurance company and the other is given to the customer estimate is an approximate bid for a given period of time usually for 30 days. The reason for a specified time period is obvious: part prices change and damaged parts can deteriorate.

Most body shops provide damage reports or estimates free of charge. Because estimate preparation can involve a considerable amount of time and paperwork, some body shops charge a flat fee for the estimate.

. Outline the sequence for evaluating vehicle damage.

How to Evaluate Damages After a Car Accident

If you have been in a car accident, your biggest worry after assessing your own health is determining how much compensation you will get to fix your car. Once the cars involved are moved out of the way of traffic, and any injuries are attended to, you can get started determining car accident damages using the following steps.

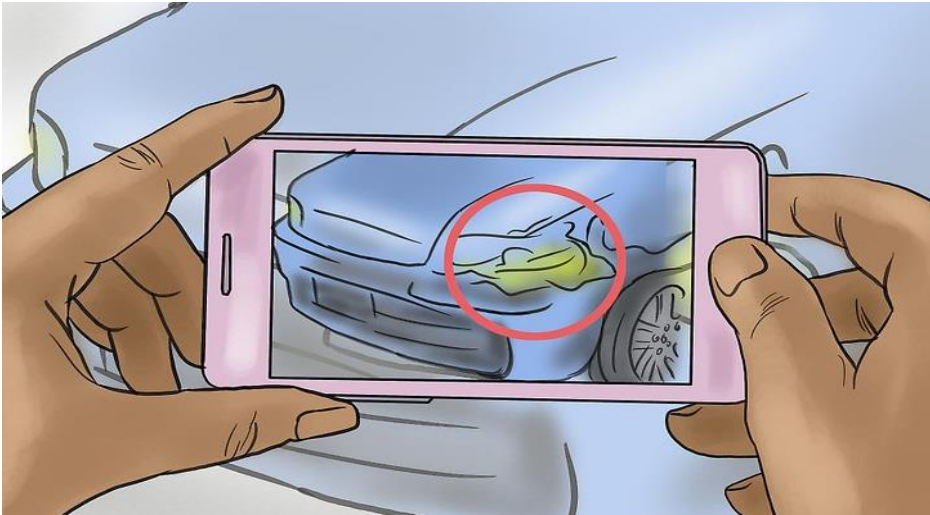
Part 1. Directly after the Car Accident

1. Address any medical concerns.

If anyone involved in the accident sustained an injury, call an ambulance so that the person can get immediate medical attention. Make sure to get copies of the treatment records, and the costs involved to substantiate the claim - injuries and treatment will factor into your compensation.

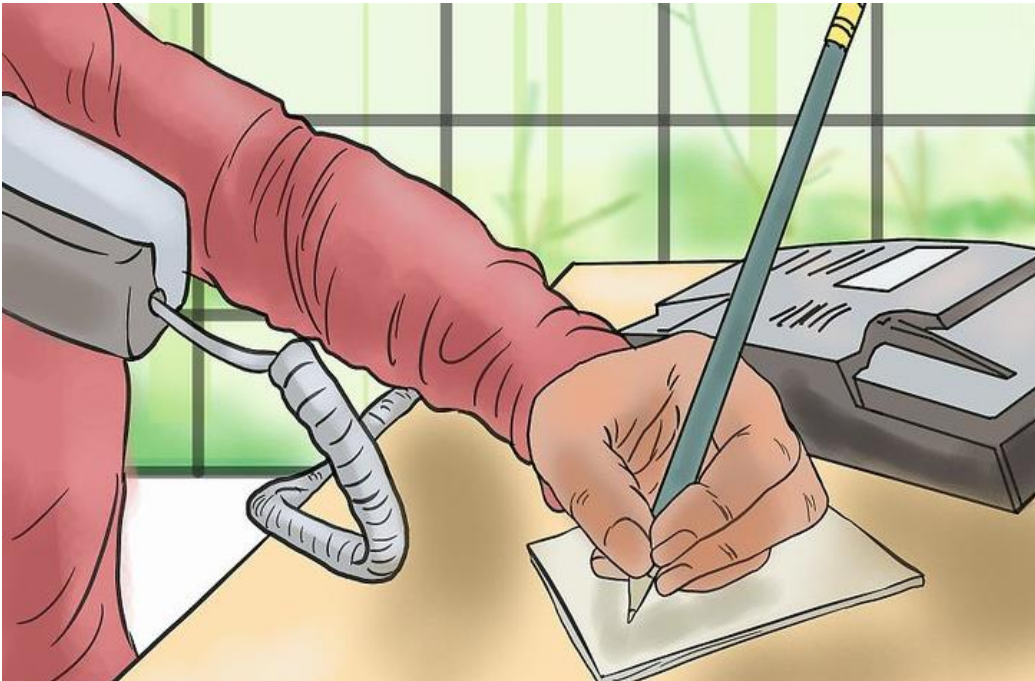


- 2. Take pictures of the damage done to your car due to the accident.** Be sure to take photos of both the interior and exterior, from close-up and from far away, so that the insurance company can get a good idea of the extent of the destruction. Take pictures that show the location and license plate of each vehicle involved in the crash.



3. Make note of any personal property inside the car that was damaged during the accident.

This may include a CD player, laptop, purse, sunglasses, briefcase, infant car seat, cell phone, or any other item that you will have to repair or replace due to the accident. This also includes items that you were wearing during the accident; however, it does not include anything that may have been lost or stolen.

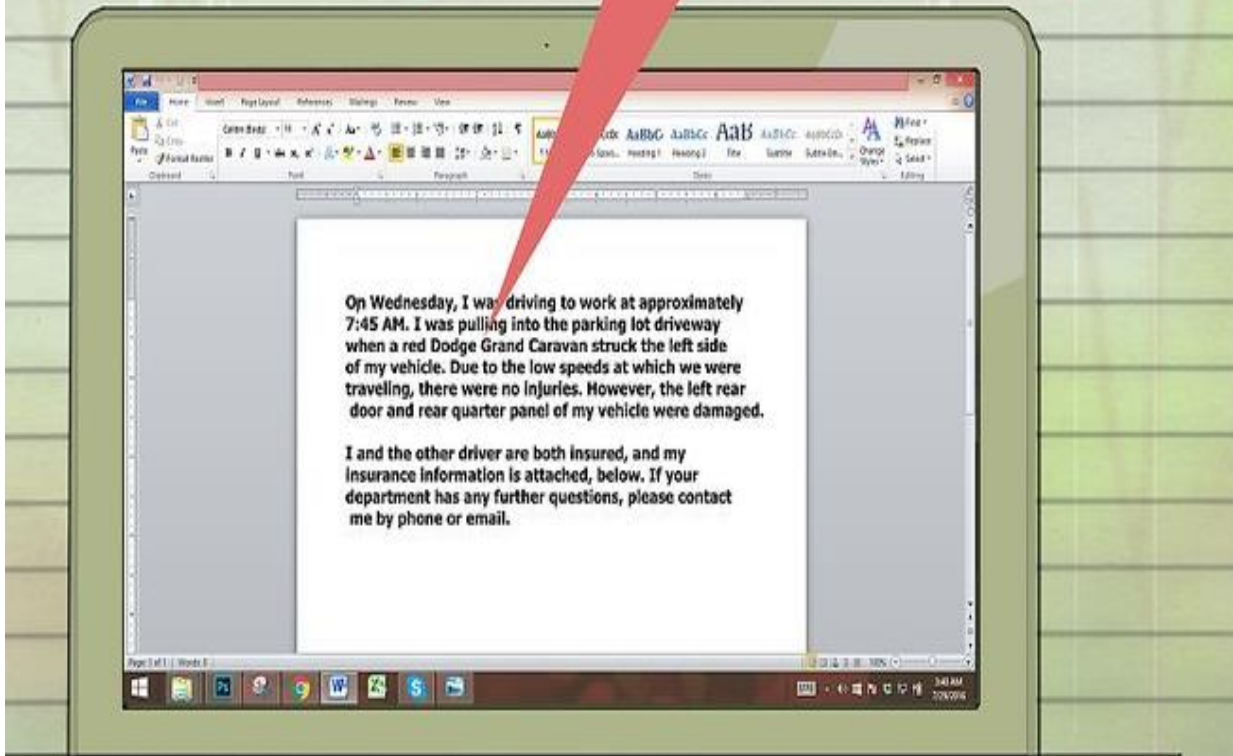


4. Write down a description of the car accident from your point of view.

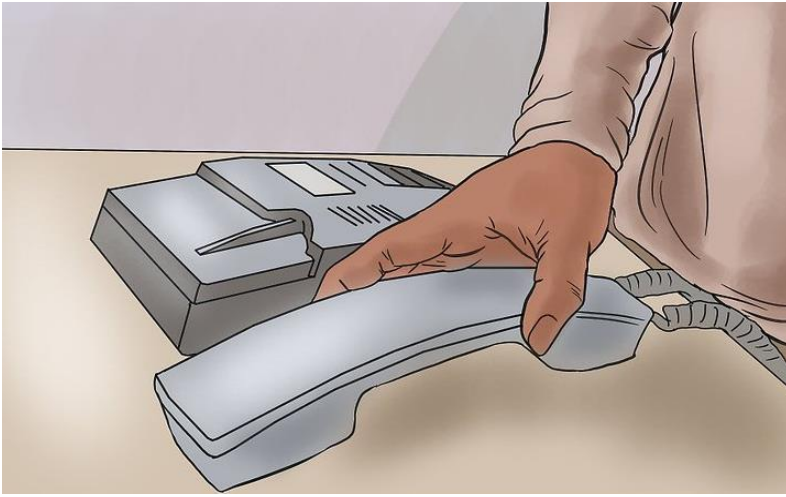
You will need to do this for the police report, but you should write this information down anyway if the police do not show up. It can be given to your insurance company to determine damages and fault.

If the police do not show up at the scene, you should still file a police report at the police station as quickly as possible.

Accident Description



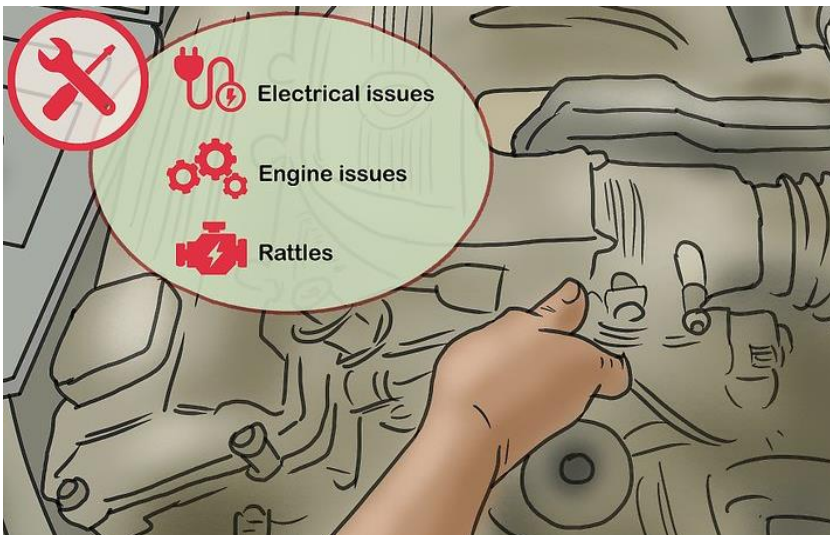
4. **Do not admit guilt.** Your only job at this time is to make notes about the situation, exchange contact information with the other driver, and cooperate with the police. Adjusters for the insurance companies involved will work later to identify which party is guilty. If you are guilty for the accident, you will file a "first-person" claim with your own insurer. If not, you will have to file a "third-party" claim with the other party's insurer.
5. **Contact your insurance provider.** Call your provider and report to them the basic details of the crash. This includes the vehicle on your policy that was involved, the driver of the vehicle at the time of the crash, the time and location of the crash, and a general description of the severity of the crash and damage. They will also need the insurance numbers and contact information for the other driver(s) in the crash and contact information for any witnesses.
 - ✓ You may also be asked to provide a police report number, if there is one.
 - ✓ You'll be provided with a claim numbers and phone number for a point of contact at the provider. Be sure to write these down.



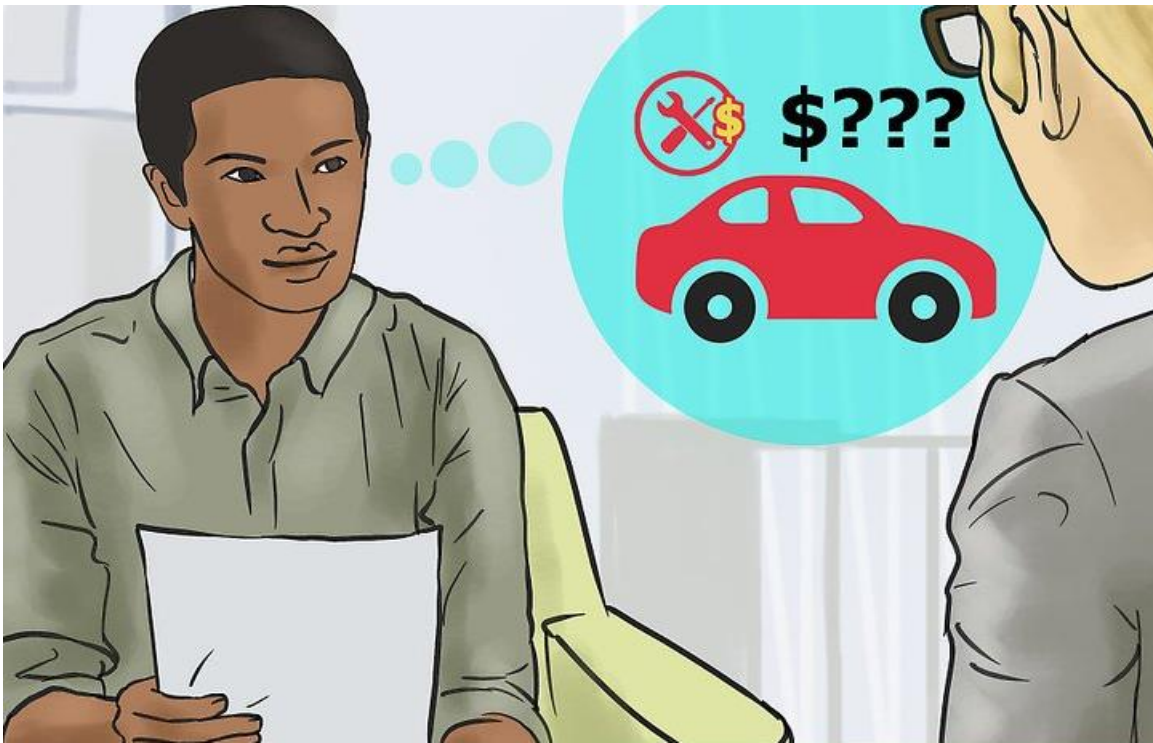
Part 2. Assessing Damage

1. Immediately fix damage that may worsen before your claim goes through. If your vehicle is still drivable, but has damage that may cause further damage to the vehicle if it is driven, your first step should be to get this damage taken care of. For example, if your sunroof doesn't close, you'll need to get that fixed or risk water damage. However, only get this fixed after contacting your insurance provider. Call them and report that your vehicle requires immediate repair. They will tell you what to do next. Typically, they will require you to take and send in photos of the damage and get a repair shop to validate that the repairs were indeed required.

- ✓ Keep all receipts of any repairs you have done during this time.
- ✓ Insurance providers are not responsible for post-accident, preventable damage, so make sure you get any issues like this repaired.



2. Get a repairs estimate. After taking care of the critical damage to your vehicle, you should get a repair shop, or several of them, to estimate the cost of repairing your vehicle. Ask the shop for a detailed, written estimate of what repairs will be done and the cost of performing each. This information will be critical later on in making sure you get enough from your insurance provider to cover repairs.



- 3. Call your insurance company as soon as possible to file a claim.** Call the relevant insurance company within 24 hours of the accident. Let the representative know that you have pictures of the accident, as well as a list of damaged personal property. An adjuster will then contact you for more information. Prevent your account of the crash objectively, without guessing or speculating as to what happened. This information will be used to figure out who is at fault for the crash (and who is financially responsible for it).
- ✓ If you were at fault for the accident, you will have to call your own insurer. If you were not, call the insurer of the guilty party.
 - ✓ You may also have to make an appointment for a claims adjuster to look at your vehicle. Schedule this visit as soon as possible so that you can get your car accident damages determined quickly.
 - ✓ Alternately, the insurance provider will have you visit an authorized repair shop to get a repairs estimate.



- 4. Wait for the adjusters' judgment.** Adjusters for both your insurance company and that of the other person involved in the crash will be working to determine fault and the damages caused. If the crash was clearly one person's fault, that person's insurance will have to pay for the damage. If you are not at fault, you will need to file a claim with the other driver's insurance provider. If your claim is disputed, you will need to hire a lawyer to protect your interests. While they may pressure you into providing a recorded statement, it is not required, and can be used against you down the road, so avoid it at all costs.
- ✓ If the crash was your fault, your insurer will pay for damages to your vehicle and others involved in the crash. At this point, the adjuster will determine a payment for repairs to your vehicle after assessing damage and repair costs.

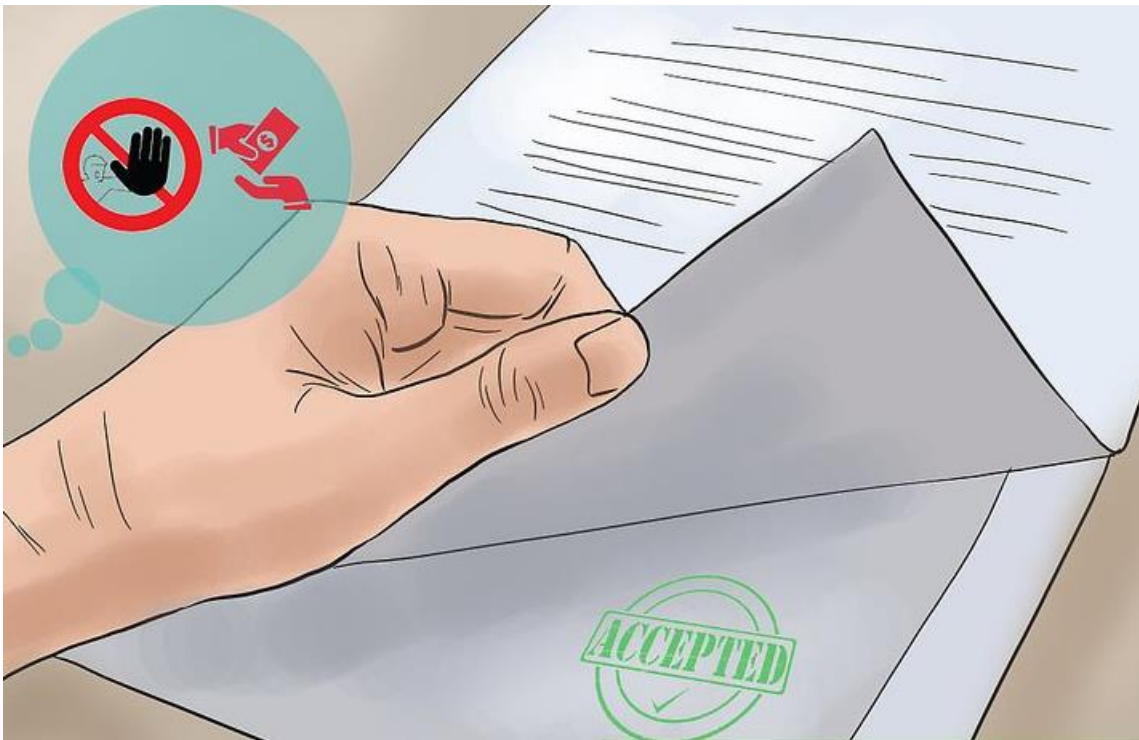
Part 3. Getting a Higher Payment

- 1. Dispute the adjuster's estimate.** The adjuster's job is to save the company money by offering the lowest amount you will take. They also expect you to ask for more than their initial offer, so be prepared to negotiate with them up to the limit that they are authorized to provide to you. Try using your repair shop estimates to work up the amount of your claim. In addition, you can incorporate additional sourcing and labor costs if your car is particularly old, rare, or otherwise expensive to repair.



2. Know the limits of your policy, as well as the maximum amount that your state allows to be paid in car accident damages. Each state has a different set of laws that specify how much may be paid out in car insurance claims. This is especially true with regards to damages that extend beyond car damage (like medical bill and emotional distress).

- ✓ Realize that you cannot get a payment for repairs equal to or greater than about half of the value of your car. This is because anything over this value is considered a total loss. At this point, the insurer will not repair the car, but will provide you with an amount equal to the market value of your car before the accident.
- ✓ If you want to keep your car, make sure not to negotiate a payment higher than this amount.
- ✓ The exact percentage varies between insurers, but marking a payment of 50 percent of the car's value or greater as a total loss is common.



3. **Check for diminished value coverage.** Diminished value coverage provides you with an additional payment for the loss of value your car will experience after being in a car accident. Each insurance agency figures out this value differently, but you can estimate your car's loss in value to see how much you might get.



4. **Be aware that you can get compensated for more than just damage to your car and medical bills.** You may also receive money for loss of income, emotional loss, or permanent physical injuries. Keep track of the days that you have taken off work due to your injuries or doctor appointments related to the accident. Keep track of your medical bills, collecting doctor notes and itemized bills when possible.
 - ✓ Obtaining payment for medical bills directly after the accident and loss of income from an insurer is fairly easy, as these can easily be quantified; however, if you are going to seek ongoing treatment or general damages payments (like emotional distress), you may want to retain an attorney.

- ✓ General damages are usually calculated using a multiple based on the severity of the injuries. Your medical bills are then multiplied by this number to arrive at a settlement amount. For example, a relatively non-serious injury might have a multiple of two, whereas very serious injuries may have one as high as 10.

5. Hire a lawyer if you do not think the determined amount is fair, as long as you have evidence to back up your case. You can also hire an attorney if you are not at fault for the accident and the other person's insurance doesn't cover your medical costs or refuses to pay them. Personal injury attorney specialize in this type of work, so look for an experienced one in your area.

- ✓ You have other rights that you can exercise without hiring an attorney. For example, you may be able to have an independent appraisal performed on the damages. Or, you can try contacting your state's insurance department to file a claim against the insurer if you do not believe they are negotiating in good faith.

Learning Unit 3- Calculate the cost estimation

LO3.1 Actualize the prices

- **Content/Topic 1-Materials survey prices**

- ✓ **Window shopping**

Is the activity of spending time looking at the goods on sale in shop windows without intending to buy any of them or the activity of looking at products in store windows without buying them or the activity of looking at products in store windows without buying them or the activity of going to a store or website to look at goods rather than to buy anything.

- ✓ **Proforma invoice**

A pro forma invoice is a preliminary bill of sale sent to buyers in advance of a shipment or delivery of goods. The invoice will typically describe the purchased items and other important information, such as the shipping weight and transport charges.

What is the process of creating a proforma invoice?

After the buyer has communicated the details of the products they want to order, the seller will create a Proforma Invoice to include all product details, quantities, pricing and delivery information. It is usually created after a quotation has been sent and when the sales process is moving closer to a confirmed deal.

Proforma invoices help to decrease any confusion that may occur when a buyer makes a transaction with a seller. When a buyer purchases goods or services, the seller sends an abridged invoice called pro forma invoices. This is an advanced invoice or an estimate that is received before orders are shipped or services are rendered. Proforma invoices convey information such as the kind of goods purchased, the quality of the goods, their value, their weight, and any transportation charges that may occur.

The first issue you have to deal with is the cost of human resource necessary to plan, monitor and execute the required work for customers.

A price of materials or bill of materials or product structure (sometimes bill of material, BOM or associated list) is a list of the raw materials, sub-assemblies, intermediate assemblies, sub-components, parts and the quantities of each needed to manufacture an end product. A BOM may be used for communication between manufacturing partners, or confined to a single manufacturing plant. A BOM can define products as they are designed (engineering bill of materials), as they are ordered (sales bill of materials), as they are built (manufacturing bill of materials), or as they are maintained (service bill of materials or pseudo bill of material). In electronics, the BOM represents the list of components used on the printed wiring board or printed circuit board. Once the design of the circuit is completed, the BOM list is passed on to the PCB(Printed Circuit Board) layout engineer.

LO 3.2 Determine the units and total costs of materials

- **Content/Topic 1- Determination of units and total prices of each item**

- ✓ **Cost per unit measures**

Unit price is the price for a single unit of measure of a product sold in more or less than the single unit. The "unit price" tells you the cost per kilo, spare part, or other unit of volume like liter for any package you need to purchase. It is usually posted on the shelf (rigid structure) below the food for example. The shelf tag (small label) shows the total price (item price) and price per unit (unit price) for the food item.

Unit price is also a valuation method for buyers who purchase in bulk (size, mass or volume). Buyer seeks to purchase 10000 widgerts (manufactured goods or products). Seller One offers 1000 widgerts packaged together for \$5000. Seller Two offers 5000 widgerts packaged together for \$25000. Seller Three offers 500 widgerts packaged together for \$2000. All three sellers can offer a total of 10000 widgerts to Buyer. Seller one offers widgerts at a unit price of \$5. Seller Two offers widgerts at a unit price of \$5. Seller Three offers widgerts at a unit price of \$4. Buyer uses unit price to value the packages offered by each of the three sellers and finds that Seller Three offers widgerts at the best value, the best price.

In economics and cost accounting, total price (TP) or total cost (TC) describes the total economic cost of production and is made up of variable costs, which vary according to the quantity of a good produced and include inputs such as labor and raw materials, plus fixed costs, which are independent of the quantity of a good produced and include inputs (capital) that cannot be varied in the short term, such as buildings and machinery.

Total cost in economics includes the total opportunity cost of each factor of production as part of its fixed or variable costs.

- ✓ **Total cost**

The rate at which total cost changes as the amount produced changes is called marginal cost. This is also known as the marginal unit variable cost.

In cost accounting by the accountants, then total cost is linear in volume, and given by:

Total price or Total cost = Fixed costs + Variable cost.

The total cost of producing a specific level of output is the cost of all the factors of input used. Conventionally, economists use models with two inputs: capital, K; and labor, L. Capital is assumed to be the fixed input, meaning that the amount of capital used does not vary with the level of production. Labor is the variable input, meaning that the amount of labor used varies with the level of output. In fact, in the short run, the only way to vary output is by varying the amount of the variable input.

Consequently, Total cost is fixed costs (FC) plus variable cost (VC), or $TC = FC + VC$.

LO 3.3 Perform calculation of charges and benefits

- **Content/Topic 1 Calculation of charges and benefits:**

- ✓ **The Labor Cost and Taxes**

The cost of goods produced in the business should include all costs of production. The key components of cost generally include:

- Parts, raw materials and supplies used,
- Labor, including associated costs such as taxes, transport, equipment, payroll taxes and benefits, and
- Overhead (other non-provided expenses) or other charges of the business allocable to production.

Labor costs include direct labor and indirect labor costs. Direct labor costs are the wages paid to those employees who spend all their time working directly on the product being manufactured. Indirect labor costs are the wages paid to other factory employees involved in production. Costs of payroll taxes and fringe benefits are generally included in labor costs, but may be treated as overhead costs. Labor costs may be allocated to an item or set of items based on timekeeping records.

- ✓ Transport and Equipment cost is the cost of transport and of equipment necessary to carry out the work.
- ✓ Transportation of materials cost is the cost of transporting materials required to carry out the work
- ✓ Benefits and other Charges are the cost remain when all costs are removed to the total cost.

- **Content/Topic 2 Calculation of grand total cost**

The grand total cost of the work done includes the all cost of detailed work carried out with benefits and other charges.

- **Content/Topic 3 Layout for bill of quantities**

Bill of Quantities is the document in which the costs of the Works are indicated, on the basis of the foreseen quantities of items of work and the fixed unit prices applicable to them.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the tender.

Bill is commercial document issued by a seller to a buyer.

A bill of sale has been defined as a legal document made by the seller to a purchaser, reporting that on a specific date at a specific locality and for a particular sum of money or other value received, the

seller sold to the purchaser a specific item of personal property, or parcel of real property of which he had lawful possession.

Sample of bill

S/N	DESCRIPTION	UNIT	QNTY	RATE	AMOUNT/RWF
1	Fuse	Box	10	15,000	150,000
2	Starter motor	Piece	5	40,000	200,000
3	Car Battery	Piece	2	50,000	100,000
4	Brake pads	Kit	4	25,000	100,000
5	Brake shoes	Kit	4	50,000	200,000
6	Clutch fluid	Bottle	10	2000	20,000
7	Brake fluid	Bottle	20	3500	70,000
8	Steering fluid	Bottle	5	5000	25,000
TOTAL					865,000

NOTE: The bill must be stamped and signed sometimes

LO3.4 Fill in bill of Quantities

- **Content/Topic 1 Calculation of charges and benefits**

- ✓ **The Labor Cost and Taxes**

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NOTE: The bill must be stamped and signed sometimes

LO 3.5 Prepare invoice

- **Content/Topic 1 Types of invoice**

The different types of invoices are:

1. Standard Invoice. A standard invoice is issued by a business and submitted to a client. This is the most common form...
2. Credit Invoice. A credit invoice, also called a credit memo, is issued by a business that needs to provide a client...
3. Debit Invoice. A debit invoice, also called a debit memo, is issued by a business.

✓ **Performa and Service**

A proforma invoice is a commercial pre-shipment document prepared by the seller and delivered to the buyer/agent, to convey information of the goods to be delivered.

- **Content/Topic 2 Invoice elements**

An invoice, bill or tab is a commercial document issued by a seller to a buyer, relating to a sale transaction and indicating the products, quantities, and agreed prices for products or services the seller had provided the buyer.

- ✓ **Invoice number**

An invoice number is a unique, sequential code that is systematically assigned to invoices.

- ✓ **Item description**

Your item description is one of the most important parts of a listing or product – it helps buyers decide whether to buy an item and what to expect if they do.

Invoice Form

Invoice No:consignment:		
Date:No of VAT		
Mr. /Madame:No of Register of commerce		
Amount to pay (in letter):		
Items	Quantity	Total
Total		
Seller's signature:		
Paid cash/cheque numberat /Other means of payment.....		
Remaining to be paid:		
Date to pay the balance:		

- ✓ **Service description**

A service is a coherent, ready-to-use deliverable that is of value to the customer

A definition of what a service provides and how it is accessed and used. A service description includes descriptions of the functional and nonfunctional properties of the service, service interfaces, and the legal and technical constraints or rules for its usage. A representation of the service operations, features, and non-functional properties.

✓ Quantities and Unit prices

What is an example of a quantity?

For example, if a sample contains 453 grams, the quantity is 453 while the unit is grams. For this example, the quantity is always a number, while units are any measure, such as grams, liters, degrees, lumens, etc.

What is the price of an item?

However, most items will have a unit of measurement, like ounces, cups, quarts, gallons, milliliters, liters, etc. Tip: If the product is priced by item or unit, then the unit price will be the cost of the item. For instance, if you're looking at watermelons that are \$3.98 per melon, then the unit price is \$3.98. The unit price is the cost per quantity of item you're receiving. The quantity might be per item or per unit of measurement, such as ounces, grams, gallons, or liters. To calculate the unit price, simply divide the cost of the product by the quantity you're receiving or check the store's shelf label.

✓ Total prices

Invoice is a document used in commerce, particularly in retail. It is made by a person or company who is selling something to a customer (or "buyer").

The invoice is given to the customer as a request for payment.

Invoice: An invoice is used to request payment. You would send an invoice to a customer who bought items on credit and owes you money. A receipt is not the same thing as an invoice.

A receipt is a written acknowledgment that a person has received money or property in payment following a sale or other transfer of goods or provision of a service. If the recipient of the payment is legally required to collect sales tax or VAT from the customer, the amount would be added to the receipt and the collection would be deemed to have been on behalf of the relevant tax authority. In many countries a retailer is required to include the sales tax or VAT in the displayed price of goods sold, from which the tax amount would be calculated at point of sale and remitted to the tax authorities in due course.

Note: VAT is A *value-added tax* known in some countries as a goods and services tax (GST), is a type All imported goods are charged VAT tax for their *full* price when they are sold for the first time.

Difference between bill and invoice

A bill; a commercial document issued by a seller to a buyer indicating the products, quantities and agreed prices for products or services that the seller has already provided the buyer with. An invoice indicates that, unless paid in advance, payment is due by the buyer to the seller, according to the agreed terms.

Note: Consignment is an arrangement in which goods are left in the possession of another party to sell. Typically, the consignor receives a percentage of the revenue from the sale (sometimes a very large percentage). Consignment deals are made on a variety of products, such as artwork, clothing and accessories, and books.

Sample Invoice Form

Invoice No: 75/04/2014		consignment: 007/04/2014	
Date: 07/04/2014		No of VAT: 1222221	
Mr. /Madame: Bazizane		No of Register of commerce: 05220	
Amount to pay (in letter): 160,000 RWF			
Items	Quantity	Unit Price	Total
sacks of flour	8	20,000 RWF	160,000 RWF
Total			160,000 RWF
Seller's signature: Patrick			
Paid cash/cheque number 32,000 RWF (Receipt No 5) /Other means of payment.....			
Remaining to be paid: 128,000 RWF			
Date to pay the balance: 09/04/2014			

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