NIDAD EDUCATIVA PARTICULAR JAVIER

BACHILLERATO EN CIENCIAS

MONOGRAPH:

"IMPROVEMENT OF AUTOCAD SOFTWARE FOR THE DEVELOPMENT OF PLANS IN BUILDINGS AND HOMES IN THE CITY OF GUAYAQUIL FROM 2016 UNTIL 2019"

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Gratitude

I would like to thank God who is always with me, to my parents for supporting me and my teachers who helped me to always lead me on a good path towards the accuracy of the result of my first chapter and the whole work by thanking that, every day I become a more responsible person in my duties because and do the best in this monographic work.

Summary

the purpose of this monograph is that one knows what are the qualities of this application with the benefits it brings I am very pleased to allow you to teach each of them along these texts

where we find different functions that make it easier for us to manage AutoCAD and helps us to do what we mainly look for, which are an architectural plan either of a building of a house or a larger project. This takes time to do but with the tools that gives you AutoCAD is much easier to manifest the arrangements of some plan.

We start seeing that this is based when you study architecture or civil engineering in which it involves drawing plans either by structure or by piping issues and where everything is going to go. This also allows us to help and maintain order in our plans, is an easier way to do a perfect job in which is agreed some type of drawing that you want to exercise somewhere.

The work in architecture has much to do with the work in the application of AutoCAD and if you need other types of functions and uses, you can also check them in different versions that give you so that you can exercise it in the best way and for what you need. The good thing about this application is that year after year it is being updated and they are improving certain functions that makes your plane look more real, this helps a lot to those who need to see it from a more realistic perspective. The models that are made with this program can be facilitated the use of a way so fast that there is no need to waste time on other applications that are not AutoCAD.

I look for with this monograph that you find an easier and more versatile way to exercise a very large project in which to do your benefit and in a certain way is a good management of it to what happens the time because with the databases that has this takes some facilities that give you them and gives you a better use from a point in which to make an architectural plan is made much easier.

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Introduction

This monographic work is about the ***"Improvement of AutoCAD software for the development of plans in buildings and homes in the city of Guayaquil from 2016 until 2019".*** This is a topic I really like because last year we used this tool in our school and it really caught my attention how it helps architects design much faster and with more freedom.

It is important to talk about this subject because the tool in question has revolutionized the design of architectural plans as we know them. Before these were drawn by hand and subjected to a long process of trial and error. After the introduction of AutoCAD to the game, the plans can be developed in a simpler and more effective way, saving time and money at the moment of wanting to build some type of building.

This monograph cites many web pages and books by architects describing the operation of the AutoCAD tool, its advantages and disadvantages, and the process by which they made use of these tools, including the "Technology and Informatic" page.

In the social context of our city, AutoCAD has improved the layout of thousands of homes, buildings, coliseums and more in the city of Guayaquil in just 3 years. For this reason, it can be affirmed that it is an indispensable tool in Guayaquil society and should be studied.

Before the boom of this tool, architectural plans were made by hand or on tools that were not as reliable as AutoCAD. Due to the fact that this tool is practically new in the market, in this

monograph we will talk about its parts and functions in order to clearly understand its importance in our city.

Chapter I

Software in AutoCAD

1.1 Definition of AutoCAD

AutoCAD is a software used 2D drawing and 3D modeling, currently developed by Autodesk. They had their first appearance in 1982. It is recognized internationally and is known by the CAD as "Computer-aided design". These applications have been recognized for their design in digital and architectural drawing that has been an index for the digitization of plans and schemes of buildings, houses, land etc. But to begin with, it is a software? A software is a set of programs mainly created by a digitized company determined for special use. In the we can find a number of programs that can help improve the participation of all of them. An example would be the Autodesk company that has a software where different programs come out where there are tools to improve and strengthen a part of the architecture and technical drawing. These are generally used to draw digital architectural plans, it is very helpful, because it has the necessary tools to develop it and thanks to that one as interpreter of your plane has the option to see how your project is going and what is needed in order to improve it.

1.2 What are its benefits?

When we talk about benefits, we find many benefits that could be derived from the applications given by Autodesk, starting with the fact that for years this tool has been updated and has been improving for a common good. This has caused the people who use it to see the improvements they have and will see each time an easier way to digitize your project and structure it in a given space and terrain.

AutoCAD has different types of updates that are improving every year, but generally we find the main components of the auto-cad that are constituted by:

The graphic window: It occupies most of the screen and is where the drawings are displayed and created. This means that it is the place where the elements of the work drawing that is being made will be represented.

Menu bar: Located at the top, it allows access to a series of drop-down menus containing the orders and procedures most frequently used in Auto CAD.

Standard toolbar: Includes a series of icons that graphically and intuitively represent the commands that will be executed if you click on them: zoom, help, crop, etc. These bars can be customized, so that the orders that we use most are included in them. They are very helpful, and they can be integrated into the drawing editor or they can stay floating.

Properties bar: Its function is to control and set the default properties of the entities, such as layer, color, drawing, modifier, annotation, blocks, properties, utilities and line type.

Floating toolbar: These are toolbars that can be placed anywhere on the screen, and include the most used orders. These bars can be customized adapting them to our usual way of working in Auto CAD.

Command line: it is the window of the command line, which allows us to interact with the program, all requests for commands are managed through this window.

Status bar: contains a large number of tools for the precision of the drawing

Icon UCS: user coordinate icon, The User Coordinate System Icon is located in the lower left corner of the graphic area, its style can be two-dimensional or three-dimensional, in our course we can use it in both ways. The UCSICON is located at the Origin of the Rectangular Coordinate System.

Cursor: According to where we place the courses this adopts different forms that makes it easier to make improvements to your architectural drawing in a simpler way without having to go to a specific toolbar.

1.3 What is it for?

It is generally used for the graphic design of plans in architecture, which allows a design of a 3D and 2D plane. It also has other functions of other concepts of different versions of the given program. It is used for the benefit of many construction companies or generators of houses in some types of land, this allows them to have a better organization based on the land that is used and how it can be managed either by the rainfall that it presents, or by some damage in the type of soil.

Another function of the AutoCAD program is that of the civil engineering branch, which handle a different part of the plans. They are based on parts of the interior of the house, like pipes, as they focus on the interior of the house a serious example of the pillars. They also see in the type of soil on which the dwelling is built and how the soil type can be improved. Viewing this AutoCAD allows you in a better way when trying to improve the soil type. also looks like in the hectares where the land is managed see the types of hole that can be and try to fill them with some material that makes the soil much more fertile so that it can be built in a better way.

There is a fairly large difference between architecture and civil engineering, although they complement each other in a certain way since the two are based on a single plane and a single structure, but they have a difference where you realize that without the civil engineering could not hold a house and without the architecture there would not be how to give to that house or structure some kind of way good nor would be constructed in the way in which is formed in the architectural plane. That is why the people who complement each other in these two branches of AutoCAD, are quite based on the part of the plans and give a lot of favor to the plans that organize each of the entrepreneurs in the application.

Chapter II

AutoCAD Features & Functions

2.1 Articles designated by the different functions of AutoCAD

There is a very large community of application developers in different formats including LISP for AutoCAD that make life easier for the designer. AutoCAD you can buy it with their distributors, these at the same time buy it with their wholesalers, the program is created and developed by Autodesk. (Technology & Informatic, s.f, párr.3)

AutoCAD focuses on the needs of a designer and make you can buy it with different types of use in which it provides the type of use for you to need it, get wholesalers who do is look for different ways of use in the same application but in different versions. All this is done by the one who handles everything from a larger area that is Autodesk. And this is why every time there are new versions of an AutoCAD with more favorable tools for a type of designer.

AutoCAD works in windows, iOS and in the cloud, it has a programmable interface that allows to automate a lot of drawing operations through APIs (Technology & Informatic, s.f). AutoCAD works on different types of computers, which makes it easier for many graphic designers, architects, etc. to work. Seeing that the application is so successful we see that we still facilitate its use by means of different brands of computers and tablets. We can also see an automation in a lot of drawing operations through apps.

"AutoCAD is the most widely used program (…) for the production of drawings or computer drawings. The estimated learning time is 3 days in training, 3 weeks to handle it at good level and 3 months to master it" (Technology & Informatic, s.f, párr.9)

It is said that the AutoCAD application is one of the most used in the design industry, seeing this, the application is easy to use because it has different types of tools that ensure a better quality of use to the plane or work on graphics that you are doing, the learning process is quite basic, where you only have to learn the basic concepts of how to use the tools that gives you that application and know how to use them when you need them.

2.2 Components of the AutoCAD program

The graphic window: It occupies most of the screen and is where they show and create the drawings. This means that it is the place where the elements of the drawing will be represented. They make it easier for you at the time of work to get the necessary things where the graphical window is.

Menu bar: is located at the top where we can find various types of menu where you are given different options for use towards the work you are doing, this facilitates the work and makes it a very useful tool.

Standard toolbar: includes series of icons, run if you click on them. These bars can be modified to your liking for a better use that makes the work faster. They can be kept in the drawing editor or as you like they can be kept floating.

Properties bar: its function is to control and set the default properties of the entities, such as: color, layer, drawing, modifier, etc. It is located at the top and makes it easier to make your drawing for a better management of your work.

Floating toolbar: these are tools that can be placed anywhere on the screen and include the most commonly used orders. These bars can be customized to fit our usual way of working in AutoCAD.

Command line: is an open window of the command line which allows us to interact with the program, all requests for commands are managed through this window.

UCS icon: icon where the coordinates of the user are. The drawing of the beneficiary's coordinate network is located in the lower left corner of the graphic field; its style may be two-dimensional or three-dimensional essence. These are located at the origin of the rectangular coordinate system.

Cursor: depending on where we place the course of the mouse, it adopts different forms that help us in the moment of the work. inside the drawing area it adopts a cross shape. If we place it inside the toolbars, it adopts the shape of an arrow.

2.3 Features, similarities and differences between AutoCAD and other computer-aided drawing systems that provide for better use and updating of the program

Computer Aided Design (CAD) is the disbursement of a wide variety of computer tools that help engineers, architects and other project workers in their respective tasks. These tools can be split basically into 2d two-dimensional software and 3d three-dimensional modelers. The 2d schema tools are based on vector geometric institutions such as judgments, lines, arcs and polygons that can be operated through a graphical interface. 3d modelers add faces and forcefulness.

Similar to AutoCAD we have a very well-known program called CorelDRAW which is also a tool that assists various professionals in the area that has to do with drawing. It has many tools similar to the functions that gives you AutoCAD. There is another program called photo draw which is perfectly equipped to work with photographic images, but you can also get working with drawings and texts.

The difference allows you to cause a 3d fill by subtracting a current 3d fill set from another applied set. In addition, it allows to imagine an end of province 2d subtracting a set of real county effects from another set adapted. We also say that over the years this application has been improving in an extraordinary way and makes each year with the updates that are done for each time to improve a little more quality of what is needed in the program for a better job. The program is always based on the design you have to do in your graphics. Autodesk increasingly sees new ways to create models that can take advantage of the tools given and provided by the AutoCAD program.

More about AutoCAD

3.1 Elements & characteristics

When you do something in the application, you must save it as a file. Then you can open it and edit it at any time. The same is true for AutoCAD. All drawings created during recording on your computer are saved as files. To do this, you must have an extension that identifies the file type. The file format is:

DWG: From the English word "drawing". This is the default task and AutoCAD.

BAK: Backup file format for AutoCAD. Each time you save a drawing, AutoCAD automatically creates a duplicate that acts as a backup file. This file contains the same information as the original, but with a different extension. If for some reason the original file is corrupted or unavailable, you can change the file extension BAK to DWG and open it like any other drawing file.

DWF: (Web Design Format): (Web Design). Viewing images on the Internet takes up little space. You need to have a special program installed in your web browser.

DXF: Drawing (Interchangeable Format) is a computer file format for CAD drawings designed primarily for interoperability between AutoCAD programs and .DWG files used in other commercially available programs. It is a general-purpose type and is used to switch between programs. That is, these files can be opened by any application that uses the drawing.

Cell or block:

These are groups of entities, which are generally used when you need to repeat a group of entities in the same drawing or paste them when they are commonly used in many drawings. For example, it is reasonable to save a bathroom, used in many architectural drawings, in a block, so that it can be attached to any drawing without having to draw repeatedly. Entities belonging to the block may be on different layers of the drawing, but this is not recommended. It is always desirable to form a block in layer 0 and then place each insert in the block in the desired layer. Blocks have their own properties and, in addition to inserting, you can choose the insertion point, the scaling factor, the rotation angle and the layer to insert. Entities belonging to a block can have their own properties, inherit layer properties in the layer or inherit properties from blocks belonging to the block (per block). Another interesting property of blocks is that they continue to depend on the source block even after insertion, and if you modify it, all such blocks inserted in the drawing will be updated. A block is a group of objects that can be inserted several times in the same drawing with the same properties and different positions, scales and rotation angles.

3.2 Object(s) & design steps

CAD systems include many common geometric objects or features, such as lines, arcs, elliptical arcs, and more complex and specific CAD objects, such as polylines, text, dimensions, fills, and splines. Each of these objects has associated properties that define the object, such as color, line type, and line thickness.

1. New model selected

2. Acadiso 3D

3. Specify using the line command

18

First point

Second bullet

After placing all the necessary lines, select the whole model, double-click and then the color of the general section of PorCapa changes to become the index color.

4. Drawing using CAD 2009

5. Originally saved in DWG format

6. Then I passed the bmp format on the part of the backup I exported. Until the jpg is sent, you can modify it like any other file and add it to your normal image work. In Windows XP Image and Fax Viewer.

3.4 Unique AutoCAD programs

There are several programs that are unique to each area of an AutoCAD-based application.

AutoCAD Architectural Office: specializes in architecture and construction.

AutoCAD Map, World, Map guide: for geographic information systems and cartography.

AutoCAD Mechanical: includes additives for mechanical production optimization, parts standardization, technical calculations, etc.

Mechanical desktop: ready for the design, analysis and manufacture of 2D and 3D production machines. Add the concept of parametric information, a revolutionary new field in the CAD environment.

3D Studio Max and VIZ: for realistic decoration, 3D animations, "virtual" presentations. They come from the same house but work differently. In other words, the connections between the programs are uninterrupted, but they were not born with AutoCAD.

In AutoCAD, you can draw elements using lines, arcs, circles, or solids, and then connect and use them as a single object. You can set these block names and insertion points in a set of objects that you can use as if they were a single object. You hear me Read on to learn how to create blocks in AutoCAD.

3.4.1 How to create a block in AUTOCAD.

To create a block, you must follow these steps:

Draw the item you want to make into a block.

On the Insert tab, on the Block Definition toolbar, click the Create Block button

A window opens where you must fill in the following fields:

Enter a name to specify the name block.

Reference Point This is where the block is inserted. To specify it, click on the "Point" button and select the insertion point in the drawing.

Subject? This is the group of objects that will form the block. Click on the design object and select all the elements you want to convert into mouse blocks.

Click OK. The block is already created When you click, you can see that it is an element and a blue pen is displayed to indicate where the block is inserted.

After creating the block, you can place the block in the drawing as many times as you want by clicking "Paste" and then "Search".

3.4.2 Export AutoCAD block.

To use this block in any AutoCAD drawing, you must convert it to a block file.

In the file where the block is drawn, click on the AutoCAD icon, select Export in the upper left corner and select "Other Formats" from the options that appear.A window will open on the left, selecting the folder where the block will be stored. At the bottom of the window, create a name to save the block file. You do not need to give the same name you used when converting this item into a block.

Be sure to select the block in a file of type then click Save. The drawing system symbol appears. Enter the name of an existing block, you must enter the name you used when converting this item into a block.

Over time, companies in the design consortium must make significant improvements to their current tools. This is because the demand for the latest products and services is high and will soon be insufficient. These advanced tools must meet certain requirements to ensure survival and success in the globalized and technologically changing world in which we live.

Easy-to-use tool available to users with basic knowledge; It is readily available, so it is commercially available to all who need it. It is dynamic, which makes it much more adaptable to the needs of each type of user. Among them

It is not a substitute for "human hands" unless you give it the time and tools to continue expressing all the creative creativity it has. It no longer takes days to create a scheme and does not require many sophisticated planning tools. After all, I want to buy time to use this creative thinking. After all, it's like developing this program. CAD systems are considered the tools that will be the basis for large engineering projects.

Conclusions

At the end of this monograph, it is concluded that:

- the purpose of this monograph is that one knows what are the qualities of this application with the benefits it brings I am very pleased to allow you to teach each of them along these texts where we find different functions that make it easier for us to manage AutoCAD and helps us to do what we mainly look for, which are an architectural plan either of a building of a house or a larger project. This takes time to do but with the tools that gives you AutoCAD is much easier to manifest the arrangements of some plan. We start seeing that this is based when you study architecture or civil engineering in which it involves drawing plans either by structure or by piping issues and where everything is going to go. This also allows us to help and maintain order in our plans, is an easier way to do a perfect job in which is agreed some type of drawing that you want to exercise somewhere.
- The work in architecture has much to do with the work in the application of AutoCAD and if you need other types of functions and uses, you can check them in different versions that give you so that you can exercise it in the best way and for what you need. The good thing about this application is that year after year it is being updated and they are improving certain functions that makes your plane look more real, this helps a lot to those who need to see it from a more realistic perspective.
- The models that are made with this program can be facilitated the use of a way so fast that there is no need to waste time on other applications that are not AutoCAD. I look for with this monograph that you find an easier and more versatile way to exercise a very large project in which to do your benefit and in a certain way is a good management of it to what happens the time because with the databases that has this takes some facilities that give you them and gives you a better use from a point in which to make an architectural plan is made much easier.

Recommendations

At the end of this monograph it is recommended that:

- as recommendations is that you use a new version every time the application is updated as each time is advancing more and more in its technology and this causes a better use of it towards the plans or drawings that you want to do.
- This application does that you can improve in the designs of architectural plans where you can increase your wisdom with each of the tools that gives you
- In your life if you study something that has to do with design, architecture or engineering, it helps you in a very big way to be able to find each of the things you need in a single application. This is very necessary because it makes you see in a better way how it improves the image of the architectural plans.
- Within it you can find improvements that are only made in this application, this gives you the ease of having it as practical as you can have it in your ipad or laptop, or in some kind of larger computer.

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