In this chapter you will find:

- What is an operating system and what do we need it for?
- What functions does it perform within the PC and what features does it have?
- How can you perform a complete installation of Windows 7 operating system?
- What do you have to do before and after you install it to configure necessary options and updates?

At the end of this chapter you will be able to:

1] Know which features it has and how the operating system works within the PC.

2] Install and configure the options of Windows 7 operating system, according to your needs and the school’s.

3] Configure the options and automatic updates to ensure your PC’s adequate maintenance.
INTRODUCTION TO THE CHAPTER

You surely have wondered: how can we perform so many actions simultaneously in the PC? You surely perform many activities at the same time, right? Check your email, open files in different programs, listen to music while you edit a text... all these are frequent tasks the PC must manage efficiently.

In this chapter we will introduce the Operating System, the PC’s most important software: the main component in charge of coordinating its overall operation, receiving and sending information from the keyboard to the screen and controlling PC’s peripherals, such as printer, scanner, etc.

Thus, the operating system manages resources so that they are enough for you to work with all necessary applications.

Besides, you will know all the steps to completely install Windows 7 operating system (the Microsoft’s most recent software!) and its main features, in order to help your peers and teachers to leverage all the advantages it offers and optimize the PC use.
15. What do you have to do if there is an emergency situation at school or at home?
WHAT IS AN OPERATING SYSTEM AND WHAT DO WE NEED IT FOR?

The operating system is the main program of all computers. It is the first program that is run and the last that is closed in the PC.

It controls and manages all PC’s physical resources, such as the processor, the memory, peripherals and also the programs that make it work.

In other words, it’s like a “conductor” that organizes and coordinates the way the computer’s physical components and logical resources will work.

Each application that runs in it and each physical component that is connected, such as mouse or keyboard, require CPU resources, which means: Central Processing Unit.

For instance, when scrolling the mouse, we are already using the operating system. The operating system is the one that decides the order through which each component or program can have access to resources. Due to computing developments in the past few years, the operating systems make it easier for us to perform complex tasks. In this way, they help us manage different actions in our computers. As we can see, the operating system is essential for us to use PCs.

If you want more information about how the operating system works, please visit: http://www.masadelante.com/faqs/sistema-operativo

Windows 7 manages tasks and resources more easily and optimizes the hardware potential.

Here we mention some examples of what we can do with our operating system:

- View and manage networks available in our homes or in a classroom.
- Add new devices to our PC.
- Solve problems that may arise eventually.

These are only a few basic features of the operating system. It is obvious that without the operating system we couldn’t even start and use our PC.
You already know that the operating system is very important to ensure the efficient PC operation, so that’s why we will discuss the steps to install Windows 7. You will probably install it in a PC you have already used, so before inserting the DVD, you need to save the information you want to keep in an external disk. Then, you will start the installation and will transfer again the files and saved configurations.

**efficient**

Efficiency means the ability to have something. In this case, the PC components need to be rational and affordable to obtain a specific effect, in order to optimize time and resources.

**HW minimum requirements to install Windows 7**

You need to check if the following components are available:

- 32-bit (x86) or 64-bit (x64) up to 1 Gigahertz (GHz) processor or above.
- 1 or 2 gigabit (GB) RAM memory (32-bit or 64-bit)
- The hard disk available space must be 16 GB (32-bit) or 20 GB (64-bit).
- DirectX 9 graphic device with WDDM 1.0 controller or above.

You need additional hardware if you want to leverage some of the powerful features such as touchscreen or to completely use Windows Media Center.
You need to install Windows Easy Transfer, an application that will allow to transfer files from a PC with Windows XP to a PC with Windows 7. To install this program, go to Microsoft’s official download website where you’ll find Windows Easy Transfer for Windows 7. Remember that the edition of Windows Easy Transfer that will be used must respect Windows XP’s installation language.

First of all, you need to specify if you are using a new PC or if you will install the OS in a PC that already has information that must be protected.

If the PC already has information that needs to be maintained, we need to follow these steps:

Windows 7 Editions

There are several Windows 7 editions that need to be installed according to different needs and the future use of the PC. They include home user versions or for beginners, and other versions that are suitable for large companies’ requirements.

W7 has six editions:
1. Windows 7 Starter
2. Windows 7 Home Basic
3. Windows 7 Home Premium
4. Windows 7 Professional
5. Windows 7 Enterprise
6. Windows 7 Ultimate

The features of each version may vary, for instance: the home edition enables a quick and simple navigation through most frequently used documents, programs and sites. The Professional edition provides more possibilities to work in the network, quickly and effectively use programs at the same time, make backups and restore the network. To install any of these editions, you need to remember that the hardware requirements are the same.
Once the program has been installed, you need to do the following:

02 From **Start menu**, go to **Programs** and then select **Windows Easy Transfer for Windows 7**. When Windows Easy Transfer starts, click on **Next** to begin with the process.

03 A screen will ask you to inform which media you will use to transfer the information. You have 3 options: an Easy Transfer cable, a network or an external hard drive, and a USB Flash unit. **Select** an external hard drive or a USB Flash unit.

04 You will see the screen "What PC is this?" There, you need to **select** by clicking on **The Previous PC** and then click on **Next**.
05 In the **Checking what can be transferred** screen, you’ll see the information about your PC users. Next to each user, you will be able to see the profile size to be copied and **Customize** the selection. By clicking on the check boxes, you will be able to choose which users of your PC you want to transfer from Windows XP to Windows 7. Click on **Customize** and you will be able to choose the transfer options. Once you select them, click on **Next**.

06 The next screen will ask you to enter a password to protect this information.

07 Once you click on **Save**, a screen will appear, where you will be able to choose where you want to save the file with the settings and files you have selected. At that point, Windows Easy Transfer will copy the selected files. This operation can take a few minutes, depending on the number of files and settings you have chosen.
03 Have fun and learn!

Know the different Windows 7 editions by discovering the hidden words in this crossword puzzle.

Tip! You can search on the Internet to get information about the different operating system's editions.

01 This is a version that simplifies the use of laptops because it doesn’t hinder what the user wants to do. It simplifies the access to networks with fewer clicks and less timeout.

02 The Microsoft’s most recent operating system.

03 It allows to create a home network and share your photos, videos and music more easily. An edition that enables the best entertainment experience at home.

04 It is a special edition for companies and includes all Windows 7 Professional features.

05 It is the Windows 7’s most versatile and efficient edition

06 It simplifies the access to most frequently used programs and documents, so that the users can spend less time searching and more time performing the tasks they want. It does not have a user interface or Aero.

07 With this edition, users can connect comfortably and safely to company networks through “Join a domain”. It offers a better ability to work in networks.

08 The screen will inform you when this process finishes.
Installing Windows 7

Once you have protected your information, you can start configuring the new operating system.

To do that, you need to follow these steps:

01 Insert the installation DVD in the PC. The installation of Windows 7 will start and will offer you the first configuration options.

02 You need to select features according to your geographic location in the following options: language, time zone and keyboard’s distribution mode.

03 Then, you need to press the Install now button.

04 You will need to accept the Licence Agreement by clicking on the corresponding box and then on I Accept.

05 Then, you must choose the installation type: New or Upgrade.

06 You also need to choose the disk - if you have more than one - where you want to install the operating system.

Recommended Link
To solve the most common issues of W7 installation, please visit: http://windows.microsoft.com/es-ES/windows7/help

configuration
Configuration is a group of data that determines the value of some program’s variables. These options are generally uploaded at the beginning. If the configuration hasn’t been already specified by the user (customized), the program or system will start the default configuration.
07. You’ll see the **Installing Windows** screen, which will remain for a few minutes while the operating system is being installed.

08. You will be prompted to choose a user name and a PC name. Remember that both cannot be exactly the same.

09. Later, you will have to enter a password. It is extremely important that each PC in which the operating system is installed has a password. As you will see later in this course, this also helps to maintain the school’s PCs.

10. Then, you will be prompted to enter the Serial Number of **Windows 7**, which is mentioned in the Certificate of Authenticity located at the box or on the PC.

11. Finally, you’ll need to choose one of the 3 options in Windows Update. We suggest you choose “use recommended options”.

12. After you choose the time zone, you will be routed to Networks. If your PC is connected to a network, three options will appear: there you need to select: work network and cancel home option. The Home Group configuration is located at the Networks specific module, because it may be also useful for school classrooms.

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**Congratulations! You have finished installing the new operating system and your PC is ready to work...**
File Transfer and Saved Settings

If you had already used Windows Easy Transfer, you need to enter again that information in the PC.

To do so, do the following:

01 Log on into the PC with Windows 7 with the user profile you want.

02 Using Windows 7 smart search, from the start menu write: “Easy Transfer” and Windows Easy Transfer will appear. Click on it.

03 In the Welcome screen, click on Next.

04 A screen will ask you to inform which media you will use to transfer the information. You have 3 options: an Easy Transfer cable, a network or an external hard drive, and a USB Flash unit. Select by clicking on the transfer media you have used to protect the information.

05 You will see the screen What PC is this? Click on New PC and then click on Next.

06 A “Components of the old PC” screen will appear, in an external disk or in a USB unit. Select YES by clicking the correct button.

07 An additional screen will open so you can search the file you have previously generated in Windows XP. Once you have found that file, double click on it and then press Open.

08 Windows Easy Transfer will ask you to enter the password you’ve created to protect the information.

09 After you open the file, you will be able to view the same users that were in the Windows XP-based PC.
10 Select the profiles you want to import and click on the Transfer button.

11 A screen will show the progress of the copy.

12 Remember that these processes may take time, depending on the number of files and settings you chose.

13 Finally, Windows Easy Transfer will inform that the process has concluded correctly and will allow you to choose two options: View what has been transferred and View a list of programs you could install in the new PC.

From now on, you are already prepared to perform tasks with the new operating system: WINDOWS 7.
Chapter 3: Installing Windows 7

Some of the features you can perform with the new operating system:

- **Connect to a network... and explore the Internet!**

A network means two or more computers that are interconnected and, thus, can share resources such as printers, folders and even an Internet connection. This can be done through cable modem or wireless network; our PC is connected to an Internet **service provider**: a kind of "megacomputer" that allows us to access to the Internet and explore freely. The system discovers the connection possibilities that are available at school. In order to connect using a wireless network, you need to click on Network located next to the clock, click on the network you wish to connect and press the **Connect button** that will be available.

In case the network is secured, Windows 7 will ask you to enter the access key that enables the network connection.

- **Another feature offered by Windows 7 is connecting a device to the PC quickly and easily.**

An extremely common operation we perform when using the PC is to connect devices such as mouse, keyboards, web cameras, printers, digital cameras, pen drives, etc. that help us work more efficiently. These devices can have different interfaces, ie, ways in which they connect to the computer.

Although there are several connection models and formats, currently most devices have **USB (Universal Serial Bus) connection** that makes it much easier.
Windows 7 simplifies the task even more because, when we connect a device to any free USB port, it recognizes the device and installs it automatically, and it’s ready to be used.

For example: once you connect a device, a sound will indicate that a new device has been connected and you will be able to see an icon at the notification area, which will state that the device is being installed. Two seconds later you will see the following: “The device has been installed correctly” and you will be able to perform your tasks.

You may probably want to use an older device. In that case, Windows 7 will need help to install it. At that moment you must provide the factory drivers that are included with the device.

When you use external drives or hard disks, you must take into account that you need to safely eject them to avoid damages. To do so, you need to click on Remove device securely and a list of all connected devices will appear. Once you click on the device you want to eject, a notification will inform you that you can eject the device securely.
Green Tip

Did you know that Windows 7 is based on Green Technologies, which include new developments and computers that protect the environment? When we watch a DVD using Windows 7, we optimize the energy consumption. How does it work? The DVD spins 11% less than in a PC with a different operating system, because in each spin it registers a higher amount of information in the PC hard drive. Windows 7 includes a tool to prove that the PC is meeting the energy efficiency requirements. To verify this, you need to do the following:

Start menu > Write CMD. Right click on CMD. EXE file and choose Execute as Administrator. Once you are at the screen, write powercfg – energy.
Your PC will perform a 60-second test and will inform you the errors.
If you want to receive a report, you’ll need to write energy-report.html and you will be able to view it.

Learn with entertainment!
Put the letters in order and find the key words of this chapter

AGOPIERTN ETSSMY
LINASTOALTIN
W7SINDWO
EILF RRNETSFA
UOFTIGNRAIONC
SHARING EXPERIENCES.
"The value of work"

When we have the appropriate technology, we have multiple study and research possibilities. In a middle school located at the City of Buenos Aires, a Civics teacher gathered her third-year course students and organized a project about the importance of work. Thanks to the Internet, they researched about existing jobs, from the most traditional ones such as doctors and lawyers, to other unusual jobs such as bull-fighters and cardboard sellers (a job that arised in Argentina due to 2001 economic crisis and consists of recollecting cardboards that are disposed of on the streets in order to recover and sell them). Thus, by integrating new technologies and addressing a significant subject for young students that start to wonder what their careers will be, the work in the classroom was rich as regards different perspectives and themes. By analyzing songs, characters in different positions and researching about work rights, the computer pushed the school’s edge by making the subject’s content more interesting and lively.

When they completed the analysis, they delivered their work to the teacher using Microsoft Word text processor and created presentations with Microsoft PowerPoint, in order to show their families what they had researched. Once more, computers allowed them to represent the study process, helping to show what the students have learned to others and themselves.
Take a few minutes and go back to what you’ve learned!

A. Try to define what an "operating system" is with your own words

________________________________________________________________________________________________
________________________________________________________________________________________________
________________________________________________________________________________________________
________________________________________________________________________________________________

B. Write in a table which operating system runs in your PC and the school’s PCs to organize the Windows 7 installation task. What information do we need to protect in each PC? What kind of transfer are you going to use? Make your notes and organize your task!

<table>
<thead>
<tr>
<th>Computer</th>
<th>Current Operating System</th>
<th>Files and settings that need to be protected</th>
<th>Transfer Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
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<td>3</td>
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<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. Write here three distinctive features of the new operating system, Windows 7

________________________________________________________________________________________________
________________________________________________________________________________________________
________________________________________________________________________________________________
________________________________________________________________________________________________

D. Review the chapter’s conceptual map and the contents that you need to read again to clear some doubts

________________________________________________________________________________________________
________________________________________________________________________________________________
________________________________________________________________________________________________

Is any device in your PC not working since you upgraded to Windows 7?

During the installation of the new operating system, some problems may appear but they can be quickly and easily solved. It is possible that any PC device, such as monitor, sound card or printer, does not work since the upgrade. How can we repair it? First of all, try to reinstall the device. If it still doesn’t work, you will need to check if the manufacturer provides a more recent version of the driver that can work with Windows 7. In these cases, you can search for the appropriate driver in the manufacturers’ websites.
Self-assessment
Answer the questionnaire and check how much you have learned in this chapter.

1. What is the operating system?
   a. A key hardware device
   b. The main PC’s program
   c. An entertainment application

2. What is the name of the most recent operating system of Microsoft?
   a. Windows XP
   b. Windows 2000
   c. Windows 7

3. How many editions does Microsoft’s most recent system include?
   a. Six
   b. Three
   c. Four

4. What is the application that enables us to protect our PC’s information before installing the new operating system?
   a. Windows Easy Transfer
   b. Information Protection Wizard
   c. Windows Transfer

5. How much free space do we need to have in our hard disk to install Windows 7 (64-bit)?
   a. 32 GB
   b. 16 GB
   c. 20 GB

6. For which applications do we need to have more hardware than the minimum general requirements to install Windows 7?
   a. Touchscreen
   b. Complete use of Windows Media Center
   c. Touchscreen and complete use of Windows Media Center

7. Why is the Windows 7 design based on Green Technologies?
   a. Because it has been manufactured based on new developments that protect the environment
   b. Because it is the new range of colors for the operating system.
   c. None of the above is correct.

8. Which kinds of installation does Windows 7 offer?
   a. New
   b. New and Upgrade
   c. Upgrade

9. The username and the PC name we choose after installing the new operating system can be the same.
   a. True
   b. False
   c. Indistinct.

10. One of the multiple Windows 7 features is to enable the user to connect a device to his PC quickly and easily. Which kind of connection do most devices currently use?
    a. COM1
    b. ZIF
    c. USB