**ONLINE ENGLISH COURSES     ESP  SRT/D2A/LPCM**

**LICENCE 3**

# Presentation of trainers

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# CHAPTER 5: Operating Systems

# Description of the course

- The English course aims at preparing students to professional life through aquisition of knowledge and skills that allow them to communicate.

- For that purpose, the course is based on providing students with skills which help them use general English and ESP **(English for Specific Purposes)**.

# Prerequisites and objectives

- **Prerequisites**

  Students should have completed L2 English course

- **Objectives**

  This course aims at providing students with the necessary skills to express themselves in English, through conversations, opinions and business letters,

  ESP courses will enable students to understand and use the appropriate lexical items and expressions related to their fields of study.

**Specific Objectives**

By the end of this course;students would know about:

- Some types of Operating Systems.

- Their Functions and the tasks they perform.

**Introduction**

**I./Types of Operating Systems**

1. Real-time operating systems:

2. Single-user, single task

3. Single-user, multi-tasking

4. Multi-user

5.GU I(Graphical User Interface)

6.Distributed Operating Systems

**II. Functions / tasks performed by an operating system**

1.Program execution

2.Control of I/O devices

3. Access to files.

4. System access control

5. Detecting and responding to errors

6.Accounting

**III. Operating Systems and Application Programs**

# Introduction

The operating system is the most important program that is on a computer.

It basically runs the computer and allows other programs to run as well.

The operating system does all the basic things that a computer needs to do, such as recognizing inputs from the mouse or the keyboard.

It keeps track of where all the files are on the computer.  It allocates resources to the various programs that are running and it prevents unauthorized access to the computer.

The most popular operating system today is Microsoft's Windows operating system.  Macintosh computers have their own operating system, the most recent of which is called Mac OS X.

There are also open source operating systems such as Linux.

# I. Types of Operating Systems

Within the broad family of operating systems, there are generally four types categorized, based on the types of computers they control and the sort of applications they support. The categories are:

**1. Real-time operating systems:**

**(RTOS)** are used to control machinery, scientific instruments and industrial systems. An RTOS typically has very little user-interface capability, and no end-user utilities.

# 2. Single-user, single task

As the name implies, this operating system is designed to manage the computer so that one user can effectively do one thing at a time. The Palm OS for Palm handheld computers is a good example of a modern single-user, single-task operating system.

# 3. Single-user, multi-tasking

This is the type of operating system most people use on their desktop and laptop computers today. Microsoft's Windows and Apple's Mac OS platforms are both examples of operating systems that will let a single user have several programs in operation at the same time. .

For example, it's entirely possible for a Windows user to be writing a note in a word processor while downloading a file from the Internet, while printing the text of an e-mail message.

# 4. Multi-user

A multi-user operating system allows many different users to take advantage of the computer's resources simultaneously. The operating system must make sure that the requirements of the various users are balanced, and that each of the programs they are using has sufficient and separate resources so that a problem with one user doesn't affect the entire community of users. Unix, VMS and mainframe operating systems, such as MVS , are examples of multi-user operating systems.

# 5.GUI

Short for Graphical User Interface, a GUI Operating System contains graphics and icons(symols/pictures and is commonly navigated by using a computer mouse.

## 6.Distributed Operating Systems:

An operating system that manages a group of independent computers and makes them appear to be a single computer is known as a distributed operating system.

The development of networked computers that could be linked and communicate with each other, gave rise to distributed computing.

Distributed computations are carried out on more than one machine.

When computers in a group work in cooperation, they make a distributed system.

In general, and regardless of the type of interface, operating systems typically provide a set of functions that can be summarized as follows:

**1.Program execution**. Running a program requires a number of tasks. Instructions and data must be loaded into main memory, files and I/O devices must be initialized… The operating system performs all these tasks.

**2.Control of I/O devices.**

Each device requires its own set of instructions and control signals to operate. The operating system takes care of all these details so that the programmer can see the access to the devices as simple reads and writes.

# 3. Access to files.

Historically we have used the concept of a file as the permanent representation of

a set of information with a global name in the system. Files reside in nonvolatile

memory such as disks and flash drives. Besides the nature of the device, the

operating system has to manage the file format and the way of storing.

# 4. System access control.

For multi-user systems, the operating system has mechanism Control of I/O devices. Each device requires its own set of instructions and control signals to operate. The operating system takes care of all these details so that the programmer can see the access to the devices as simple reads and writes.

# 5. Detecting and responding to errors.

When a computer system is in operation it may fail. These errors can be hardware (memory or device access error), or software (arithmetic overflow, attempt to access a forbidden memory position...). In many of these cases the system has hardware components to detect these errors...

and to communicate to the operating system, which should give a response that eliminates the error condition with the least possible impact on the applications that are running.

The answer may go from the ending of the program that caused the error, to retrying the operation or simply reporting the error to the application.

# 6.Accounting.

It is common for an operating system to provide tools for tracking operations and accesses, and for collecting data regarding resource usage. This information may be useful to anticipate the need for future improvements and to adjust the system so as to improve its performance. It can also be used for billing purposes. Finally, upon a security issue, this information can be used to discover the attacker.

# III. Operating Systems and Application Programs

The operating system provides an interface between an application program and the computer hardware, so that an application program can interact with the hardware only by obeying rules and procedures programmed into the operating system. The operating system is also a set of services which simplify development and execution of application programs.

Executing an application program involves the creation of a process by the operating system kernel which assigns memory space and other resources, establishes a priority for the process in multi-tasking systems, loads program binary code into memory, and initiates execution of the application program which then interacts with the user and with hardware devices.

# Course requirements

- Read carefully the courses steps

- Have a computer

- Read and understand the texts

- Do the assignments and attend tutoring sessions