

Introduction to Operating Systems
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Lecture – 01
Introductory to the Course

Hello, and welcome to the course on an Introduction to Operating Systems. This is 8 week NPTEL Course, which is mostly targeted for Under Graduate Computer Science and Engineering students, Electrical and Electronic students as well as Msc Computer Science students may also benefit from this course.

The prerequisite for the course is a very good and strong understanding of the C Programming language. Especially, we will be using a lot of pointers in particular function pointers as well as data structures, such as linked list and trees. Also important is a good understanding of Computer Organization and Architecture, especially the way memory is organized and managed in the computer system.

This course will be graded there will be a series of assignments every week and an n semester examination as well. So, why do we have to study operating systems? The OS or Operating Systems as such place a very crucial role in any computer. It forms one of the most essential parts of the system. It is used to interface between the computer hardware and the applications that it uses. So, in its heart the OS is just another software program that we write, however it differs quite considerably from standard programs.

For instance, in an operating system code you will find a lot of assembly coding that is present, so this is not typical of any standard code that we write. In addition to this you will see that in the operating system code you would have many parts of the code which communicate directly with devices. And by devices we mean the hardware devices like, the keyboard, network and so on. In standard programs or applications that we write we do not do such direct communication with the hardware devices.

Another important aspect when we look at operating systems code, is that time plays a very crucial role in the operating system. So everything as such would depend on time.

Operating system in general as such is event-driven and gets triggered to execute only when events occur. As a consequence of this, debugging and operating system becomes extremely difficult. Additionally a large part of the operating systems code is very specific to the micro processor which it runs on; a lot of features of the processor are utilized in the operating system.

In this course we will study keeping the Intel x86 processor in mind. Thus, a lot of the operating system concepts that we study in this course will pertain directly to the Intel processor family. However, this being said the concepts that we said in this course are applicable to most other processors as well.

In this course we will look into various aspects about the operating system. Essentially, we will analyze the various inter-crises in the operating system design as well as the trade of with respect performance and so on. So, welcome to the course.