

3BA3 – Systems Software

- Lecturer: Kenneth.Dawson-Howe@cs.tcd.ie
- Two semester course:
 - Operating Systems (12 weeks)
 - Data Communications/Networking (12 weeks)
- Web Resources
 - <http://www.cs.tcd.ie/courses/ba/3ba3/>
 - Overheads provided online in PDF form
 - Password protected web pages
 - Username: 3BA3
 - Password: oscomms

OS Course Contents

- Introduction
- Processes & Threads
- Memory Management
- File Systems
- I/O Systems
- Protection & Security
- Distributed OS Issues ?

OS Lecture Plan & Course Text

Course Intro
OS Intro
OS Structures

- Generally 2 lectures & 1 tutorial per week
- Reading required by all students
 - prior to lectures
 - sometimes at the start of a lecture
- Course Text
 - Operating Systems Concepts (6th edition) including the Windows XP update
 - Silberschatz, Galvin & Gagne (Wiley)
 - ISBN 0-471-26272-2
 - 500.164 M39*5-1
 - The OLD 6th edition is also available in the library:
 - 500.164 M39*5

OS Coursework

Course Intro
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OS Structures

- Programming Assignment(s)
 - Based on UNIX
 - To gain experience of using OS system calls and OS facilities
- Test(s)
 - To ensure that all students keep up with the course

What is an OS?

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 OS Structures

- Read OS Concepts pp.3-4
- An OS
 - “manages the computer hardware”
 - “provides a basis for application programs”
 - “acts as an intermediary between a user of a computer and the computer hardware”
 - “designed to be convenient, others to be efficient, and others some combination of the two”

Types of OS & Design Goals

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 OS Structures

- Desktops Systems (PCs)
 - _____
- Multiprocessor Systems
 - _____
- Distributed Systems. Either
 - _____
 - _____
- Real-time Systems
 - _____
- Embedded Systems
 - _____
- Handheld Systems
 - _____

OS Components

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- Process Management
- Memory Management
- File Management
- Device Management
 - I/O devices
 - Secondary & tertiary storage
- Networking
- Protection & Security
- User Interface

System Calls

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- Provide API to the OS functionality
- Five categories
 - Process Management: _____
 - File Management: _____
 - Device Management: _____
 - Information Maintenance: _____
 - Communications: _____

System Programs

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- System programs provide a convenient environment for program development and execution.
- They can be divided into:
 -
 -
 -
 -
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 -
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- Most users' view of the operating system is defined by the system programs (not the system calls).

9

OS Layers

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OS Structures

- Operating system software is divided into a number of layers.
-
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- Advantages: _____
- Disadvantages: _____

10

OS Layers Example

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■ OS/2 layer structure.

