Operating Systems
EDA092, DIT400

http://www.cse.chalmers.se/EDU/OS/

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Why study Operating Systems

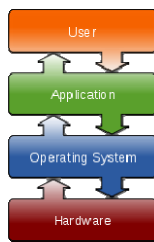- Where there are computers, there are operating systems....
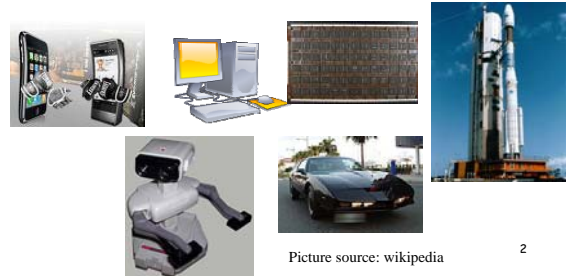
Picture source: wikipedia

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What does an Operating System do:

- Provides a set of services to system users

- Shields between the user and the hardware

- Resource manager:
  - CPU(s)
  - memory
  - I/O devices
  - ….

Picture source: wikipedia
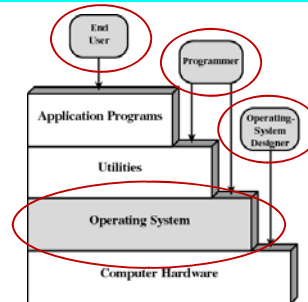
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… to put it another way:

Figure 2.1 Layers and Views of a Computer System

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Why study Operating Systems (cont)

- To learn how computers work
- To learn about system design
  - performance vs. simplicity, HW vs. SW, etc.

- To learn how to manage complexity through appropriate abstractions
  - CPU, memory (hierarchy), files, semaphores, etc
  - .

- again: Because computers and OSs are everywhere!

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Operating Systems - EDA092
You will learn about....

- *concurrent* processes
- resource management &deadlocks
- memory management, virtual memory
- processor scheduling
- multiprocessor OS issues
- file systems, distributed file systems
- microkernels and virtual machines
- *instantiation* in established OS

- 2 hand-on **labs**, building OS components

Picture source:cover-page of Modern Operating Systems, A. Tanenbaum

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Literature:

- Main textbook:

  Silberschatz, P. Galvin, G. Gagne: Operating System Concepts, 7e/8e, Wiley 2005/2009.
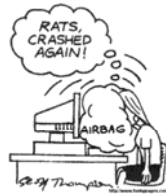
Prerequisites

- Machine oriented programming (DAT015, EDA480) or similar.
  - Basic knowledge in low level programming. Familiarity with terms like assembler and interrupt.

Good OS knowledge is helpful!

Besides better understanding of computer systems....

The course knowledge is a vital basis for understanding further about networks, parallel and distributed systems organization and programming.