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Operating System I
(5 hp)



Operating systems
and process-oriented
programming
(15 hp)



Computer systems
with project work
(20 hp)

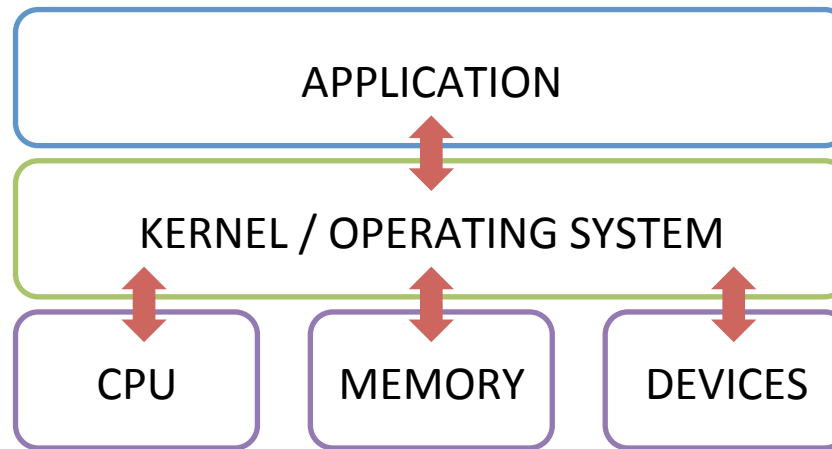
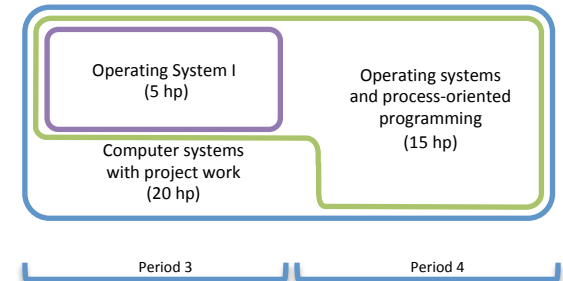
Period 3

Period 4



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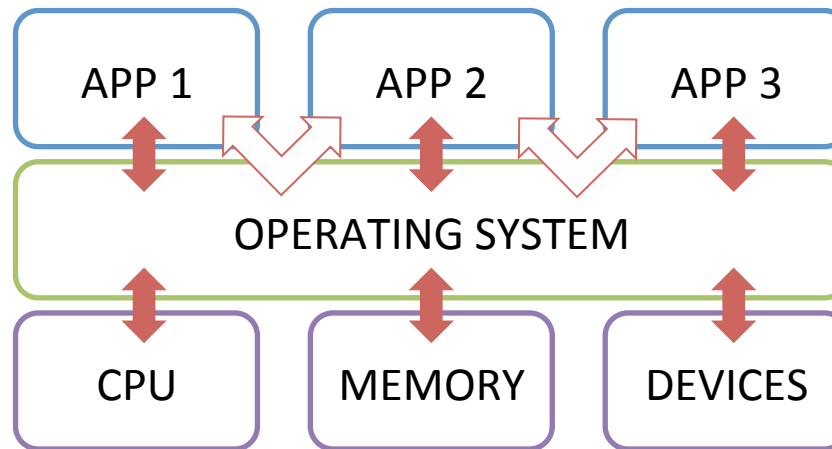
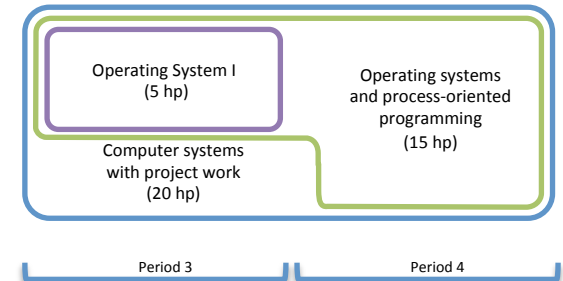
Inside (an old) computer





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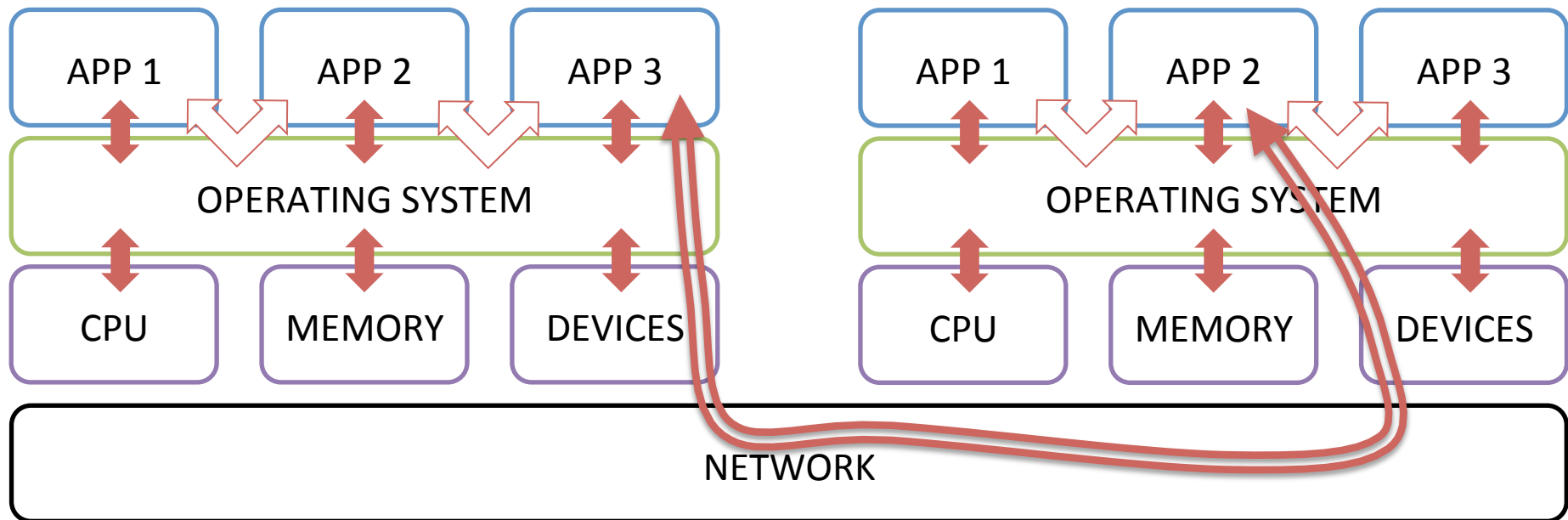
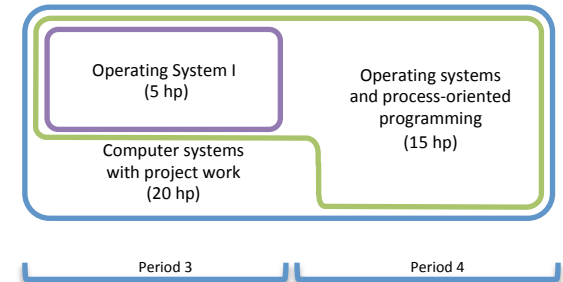
Inside (a not as old) computer





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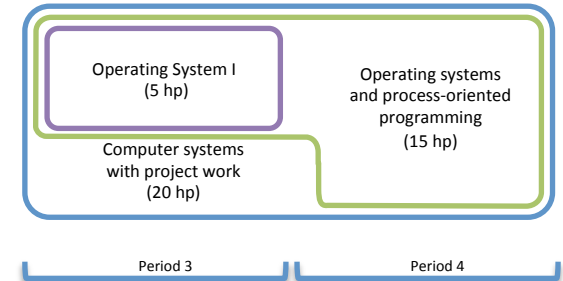
Introducing networks



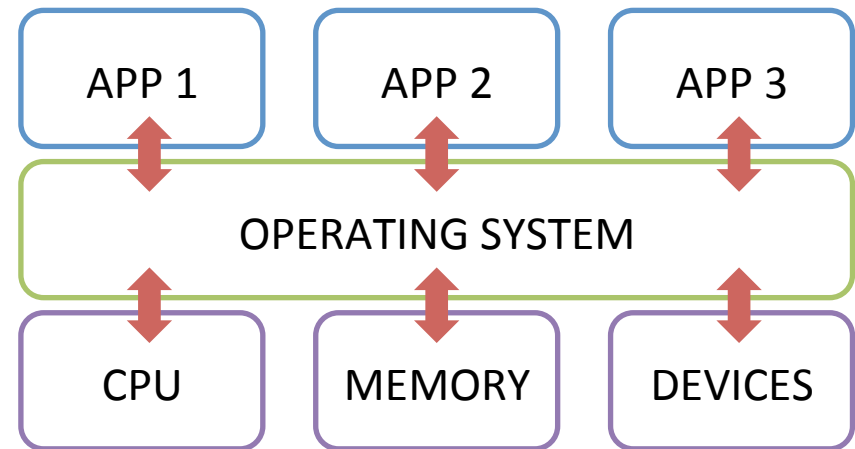


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What does the Operating System do?



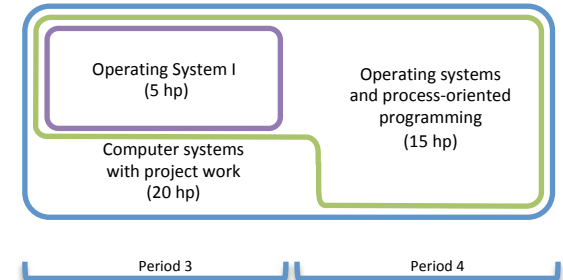
- Resource management
- Provides an UI
- Execute and support apps





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A first take on the concept of **Multitasking**

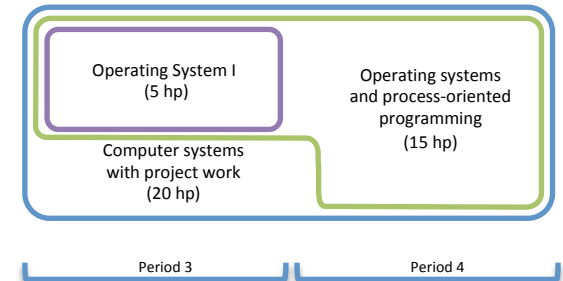


- Create an illusion of multiple CPU:s to...
- ...support several concurrent applications...
- ...using the *process* abstraction



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What is a process? (in an OS context)

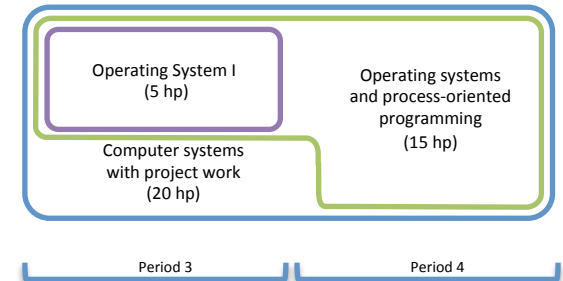


- An abstraction for the unit of work in a computer
 - Could be an application, a part of an application, a part of the operating system etc.
- Computer systems consists of a collection of processes that exists and execute concurrently
- The operating system is responsible for process management (creation/termination, scheduling, mechanisms for concurrency, communication)



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Communicating processes

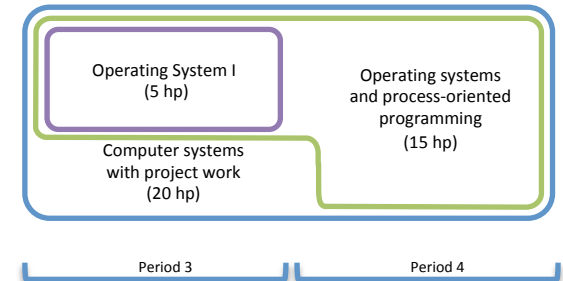


- Computer systems consists of a collection of processes that exists and execute concurrently
 - ...possibly on different computers!
- There can be shared resources that multiple processes work with, which cause problems that must be addressed:
 - Synchronization
 - Coordination
 - Naming
 - ...



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The three courses



- OS I :
 - Basics of how an operating system works
- OSPP:
 - As above, plus an additional project
- DSP:
 - As above, plus topics on computer networking, distributed systems and data security



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Operating systems

Case study

Project

Computer networks
Distributed systems
Data security

Period 3

Period 4



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Modular course structure

- An introduction module (M0) to get started
- Themed theoretical modules M1 – M5
 - 1DT003 has an additional module M6
- A case study
- An exam module
 - Electronic exam on March 19:th
- In period 4 (1DT096 and 1DT003 only):
 - A project work module



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Content of one theoretical module

- One or more **lectures** not mandatory
- One or two **workshops** not mandatory
- **Tutoring** in computer labs not mandatory
- Presentation **seminars** **mandatory**
- **Code grading** sessions **mandatory**
- Individual **hand-ins** (1DT003 only) **mandatory**

- **Extra tutoring** for those who need it
- **Retakes** if you missed a mandatory session
- **Higher grade code grading** If you passed the code grading session the first time it was offered and aim at high course grade



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Exam module

- Exam workshop
 - Properties of good exam questions
 - Properties of good exam answers
 - Discussion of student-submitted exam questions
- Written exam
 - Electronic exam
 - Sample electronic exam will be made available



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Grading

- Information about different grade levels for every assessment can be found on the course homepage
- Your course grade is computed by combining your grades from all of these parts using a specific formula presented at the course web page.
 - Course grade is **not** automatically the Exam grade



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What if you miss something?

- There are retakes in the schedule
- A meta-retake at the end of period 3
- An exam retake at the end of period 4
- An exam retake in August

I.e: you will have 3 possibilities for most mandatory parts throughout the course.



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Schedule

- Subscription is strongly recommended
 - If in a class, search for the class schedule
- Read the comments
 - **Retakes and Extra tutoring only for those who need it**
 - Code grading for higher grade only for those who:
 - Passed the code grading at the first offering
 - Have ambitions to get a higher course grade
 - Module indicators



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Course literature

- No formal course book
- A brief list of recommended readings
- Topics covered presented as topics, not as pages in a book, a video link or similar
 - Brief overview for some topics on course homepage
 - You must find your own material to study



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The courses on the web

- Student portal
 - Group divisions (Pairs, Study groups, Classes)
 - Progress
 - Some course material
 - Hand-ins (1DT003 only)
 - Link to course web page
- Piazza
 - To ask questions
 - Discuss with other students in the course
 - Primary channel for communication with teaching staff
- Course web page
 - Module content
 - Assignments
 - Workshop questions
 - Information about learning and assessment
- GitHub
 - Slides



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What you should do now:

- Check out the course web page
 - Linked to from the Student portal
 - 1DT003 only: First deadline next Monday at 10
- Form pairs
 - For 1DT003 only:
 - Specify what class you belong to
 - Ensure that both students in a pair are in the same class
 - Deadline to form pairs on your own: **today** at 18:00
- Subscribe to the schedule
- Log in on Piazza
 - Recommended: set up mail notification