2 Organization of the Lecture

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Lehrstuhl für Informatik 4
Systemsoftware

Friedrich-Alexander-Universität
Erlangen-Nürnberg

Summer Term 2024

http://sys.cs.fau.de/lehre/ss24
Content and topics

- Basic concepts of system-level programming
- Introduction to the programming language C
  - differences compared to Python/Java
  - modular concept
  - pointers and pointer arithmetic
- "Bare-metal" software development directly on hardware (ATmega μC)
  - mapping of storage ↔ language constructs
  - interrupts & concurrency
- Software development on operating system (Linux)
  - operating system as a runtime environment for programs
  - abstractions and services of an operating system
Lecture

- 36 sections
  - slides on the web server syc.cs.fau.de
  - dates: see semester overview
  - → requirement for successful handling of the exercises

- Questions on the lecture
  - ideally ask immediately
  - in following lecture

- Q&A at the end of the term

Lecture does not replace the tutorials and hands-on exercises!
Exercises

Tutorial and hands-on exercise

- Tutorial (Tafelübung)
  - distribution of and additional information for the programming assignments
  - joined development of an outline for the solution
  - discussion of the solution the week after
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  - Hands-on exercise (Rechnerübung)
    - independent programming
    - working with development tools
    - support from an exercise supervisor

Appointments: choice of 8 + 1 groups
registration via Waffel from Thursday 04/18/2024, 6pm (refer to website)

separate group only for SLP

Valid login for the Linux-CIP required for participation in exercises!
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Valid login for the Linux-CIP required for participation in exercises!
WARNING!
There will be no tutorials & exercises during the winter term for students who failed the exam

WARNING!
Programming Assignments

Practically apply lecture contents
- eight programming assignments
- including assignments in groups

Solutions must be submitted in the SPiC-IDE
- your solution is validated with the help of scripts
- we correct the assignments give points and provide feedback
- a solution will be presented by a student in one of the following tutorials

requires attendance!

Participation in the programming assignments is NOT mandatory; however you can earn up to 10% extra points for the exam!

Plagiarising will lead to losing ALL extra points. Nonetheless, the participation in the assignments is highly recommended!
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Nonetheless, the participation in the assignments is **highly recommended**!
Passing Rate of the Exam (SPiC)

By activity of the participants in the programming assignments.

- **ST23**: 48% (with ∅ 3,4) submitted none or less than half of the assignments
  - 83% (with ∅ 2,3) submitted at least half of the assignments
- **ST22**: 33% (with ∅ 3,5)
  - 69% (with ∅ 2,7)
- **ST21**: 38% (with ∅ 3,3)
  - 87% (with ∅ 2,4)
- **ST20**: 25% (with ∅ 3,6)
  - 91% (with ∅ 2,5)
- **ST19**: 51% (with ∅ 3,2)
  - 84% (with ∅ 2,5)
Exercise Platform: the SPiCboard

- ATmega328-\(\mu\)C
- USB port
- 8 LEDs
- 2 7-segment elements
- 2 buttons
- 1 potentiometer
- 1 photo sensor
  
  **optional:**
- OLED display

- can be borrowed during hands-on exercises
- better option: \(\rightarrow\) solder one by yourself!
- alternatively: development in simulator, which is integrated into the IDE
The FSI EEI, FSI ME and the FabLab offer a “soldering night” for the participants of the SLP lecture.

- participation is not mandatory
- you can gain (first) soldering experience while building your own SPiCboard
- there will be likely 4 appointments (in KW 18/19)

Registration via Waffel **necessary**, since the participation is limited: from Thursday 04/18/2024 at 6 PM (refer to website)

Participation is free of charge for SLP students (materials are funded from tuition fees)

**The date you choose to register is binding!**
Exam and Final Grade

Exam (written test)
- date: expected in early august
- length: 90 min (SLP)
- contents: questions on the lecture + programming exercise

Exam grade $\mapsto$ final grade
- (Usually) 50% of the exam’s maximum possible points (EP) are necessary to pass.
- Only if you passed, your grade can be improved by your bonus points from the programming exercises.
  - minimum: 20% of possible bonus points (BP)
  - bonus points get divided in equal parts to match the interval [50%;80%] of possible BP
  - having 80%-100% of possible BP $\mapsto$ +10% of the maximum EP
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<th>Semester overview</th>
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Details: [http://sys.cs.fau.de/lehre/ss24](http://sys.cs.fau.de/lehre/ss24)
Contributing Individuals, LS Informatik 4

Lecturer

Volkmar Sieh  Jürgen Kleinöder  Peter Wägemann

Organization of the tutorial and exercises

Maximilian Ott
Tutorial mentors

Jannik Hausladen
If there are Questions or Problems

- Take a look at the lecture or tutorial slides
- Consult the FAQ on our website
- Hands-on exercise
- Only if you still have no answer or in special cases, write an email to
  → all tutorial advisors i4spic@lists.cs.fau.de (content-related)
  → all academic staff (of this lecture) i4spic-orga@lists.cs.fau.de (organisational questions)