

Embedded Software

Introduction to I3ISU

Agenda

- Overall perspective
- Schedule
- Resources
- Lab challenges & review
- Exam
- Practical stuff

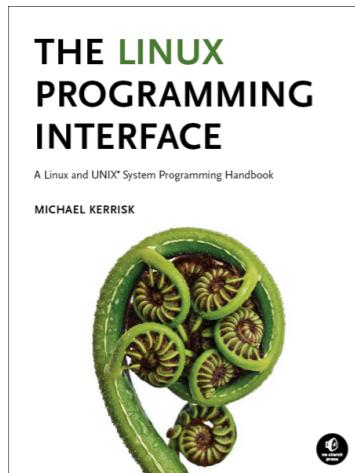
Overall perspective

- I3ISU will teach you about...
 - ▶ Linux
 - ▶ OSs
 - ▶ Multithreaded (parallel) programs
 - ▶ Event driven programming
 - ▶ Design patterns & Idioms ...
- The last C++ course you will have
 - ▶ All previous courses considered known and will be used
 - ▶ A large degree of self-support

Schedule

- Course I3ISU
- Introduction to OS and Kernel
- Linux development & Cross compilation
- Processes & Threads
- Thread Synchronization I & II (x2)
- Thread Communication (x2)
- OS API (x2)
- Resource Handling
- Message system

Resources



Michael Kerrisk: “The Linux Programming Interface”



Notes, on-line articles, man/info pages... (GOOGLE)
OLA - OnLine Articles
TLDP - The Linux Documentation Project

Resources

- Programming environment
 - ▶ Target OS: Poky Linux
 - ▶ Custom 4.9.77 linux kernel
 - ▶ Custom package selection
 - ▶ IDE: Qtcreator or Eclipse, whatever you want...
 - ▶ Host OS: LUbuntu 17.10
 - ▶ Platform: Raspberry Pi Zero Wifi

Your new best friend



Resources

- Redmine Wiki - <https://redmine.ase.au.dk/courses/projects/i3isu/wiki> - Require VPN connection - maybe
 - ▶ Articles, notes, etc.
 - ▶ Repository - (Course schedule, Presentations & Exercises)
- ASE's Raspberry Pi Zero Wifi Wiki
 - ▶ <https://redmine.ase.au.dk/devs/projects/raspberry-zero/wiki>
- On-line documentation
- The web in general

Lab challenges & review

- Exercises in groups
 - ▶ Team up minimum 2 and max 3 in each
 - ▶ In the courses links section you will find a link to I3ISU googledoc spreadsheet (Exercise status)
 - ▶ A week's **exercise** consists of a *lab challenge* and *peer review* of one other hand in done by fellow students (Read and follow *Guide_to_the_use_of_a_wiki_in_I3ISU.pdf*)
 - ▶ Week 1 Exercise commenced
 - ▶ Week 2 Working on lab challenge
 - ▶ Week 2 Lab challenge completed midnight at latest (see googlespreadsheet)
 - ▶ Week 3 Review completed at midnight (see googlespreadsheet)
 - ▶ Deadlines not met equates **failure!!!**
 - ▶ Spreadsheet not updated equates failure regardless of whether the assignment is completed or not!
 - ▶ Load is approximately **9 hours** a week

Prerequisite for & the exam

- Prerequisite for
 - ▶ Lab exercises on Wiki with reviews must be met with 75% approval
 - ▶ Groups of minimum 2 persons - maximum of 3.
- The exam
 - ▶ 20 minute oral exam, external censorship, 7-scale grade
 - ▶ Exercises may be printed and used as an aid at the exam
 - ▶ No computers allowed
- Exams document
 - ▶ Be sure to check it out - contains all topics, sub topics, corresponding curriculum and material
 - ▶ Filename: *OralExam.pdf*

Practical stuff

- Raspberry Pi Zero Wifi
 - ▶ Buy at ***stakbogladen***
- Course evaluation
 - ▶ Mid-semester -> talk
 - ▶ End-semester -> GoogleDoc questionnaire

Practical stuff - part 2

- Short demonstration/presentation of Redmine
- Short intro to the *Exercise status* googledoc spreadsheet