Operating Systems II ST 2020

Course Overview and Information

History of this Course

- Windows Operating Systems Internals is a pool of material and resources that explains operating systems (OS) concepts based on the Microsoft Windows XP / Windows Server 2003 (and later) operating system family, structured following the ACM/IEEE Operating System Body of Knowledge ("BOK") as defined in Computing Curriculum 2001 project by the Joint IEEE and ACM Task Force ("CC2001").

- This curriculum is based on the book Windows Internals, 4th to 6thedition (Microsoft Press, 2004-2012) by Mark Russinovich, David Solomon and Alex Ionescu.

- From 2004-2006, Prof. Dr. Andreas Polze has been working with the authors to produce these lecture materials that are accompanied by experiments, lab descriptions, quizzes, and assignments.

- Microsoft has offered these materials as Curriculum Resource Kit for download on Faculty Connection (top download, 2006-14).

- Previous iterations of this course are available today on tele-task.de and betriebssysteme.org.

People

Prof. Dr. Andreas Polze

- Professor at the Operating Systems and Middleware chair at the Hasso-Plattner-Institute for Software Engineering at University Potsdam since Oct 2001

- Speaker of the PhD school on "Service-Oriented Systems Engineering" at Hasso-Plattner-Institute since Oct 2005

People

Andreas Grapentin

- PhD Student at HPI since 2015

- UNIX and POSIX enthusiast

- Operating Systems History Geek

- Core Maintainer of
  parabola GNU/Linux-libre
  (help wanted! Ask me about GNU/Linux.)

- Asker of Questions

People

Lukas Wenzel

Sven Köhler

Daniel Richter

recipients of the
bs@hpi.de
mailing list

Course Overview

- ITSE Bachelor Course worth **6 ECTS Points**

- Consisting of **Lectures** and **Project Work**

- Time allocation: **25% Input**, **75% Project**

- Input will be **asynchronous**

  - Videos, Texts, Supplementary Materials

  - To be reviewed in your own time

  - Discussed in **weekly video calls**

Goals of this Course

All of you are established and competent **Users** of Operating Systems. You have also previously earned the skills and knowledge to comprehend the **inner workings** of an operating systems and to use its **programming interfaces** efficiently.

The goal of this course is to supplement your **theoretical** understanding of operating systems concepts with **practical** experience.

Requirements

The preliminary knowledge required for this course includes:

- **Basic Operating System knowledge**
  You should have a good understanding of the basic functionality of an operating system.
  (for example as presented in Operating Systems I)

- **The C Programming Language**
  You should to be able to read and understand, as well as write and translate advanced programs in C, or a similar system language.

Topics

Topics covered in the material of this course include:

- Device Management
- IO System
- File Systems
- Networking
- Embedded Systems
- Fault Tolerance
- Virtualization

- Scheduling
- Memory Management
- Security
- Concurrency / Parallel Programming
- Accelerators
- ...

Projects

- To complement the lecture input, you will complete a **project** related to one of the topics of this course

- Projects can be done in **alone** or in **teams** of up to three people

- Project Topics will be assigned in the coming sessions. We have prepared a list of projects for you to choose from, but you are welcome to **come up with your own ideas**!

Regular Call Schedule

The first video call will be:

Thursday, 30th April, 11:00

Using this **jitsi** room:
https://hive.lukas-pirl.de/bs2live

We have prepared **zoom** as a backup in case of technical difficulties.

Call Etiquette

We request that you follow a few basic rules, to make this semester an enjoyable experience for all of us:

- Please **attend** the regular video calls

- Please **mute** your Microphone if you are not speaking, to avoid feedback and echos

- Please **identify** yourself using your full name

- Please **show** your face when you speak or present, if possible

Grading

- Your final grade will be determined by:

    - 50%: A final review of your **project work**.

    - 50%: A **short report** outlining your project and your personal contributions in case of a team project.

- Regular Attendance in the weekly Video Calls is required to pass the course!

Contact Us

- Find me on Telegram: **https://t.me/drafthorse**

- For general questions, **E-Mail us** at **bs@hpi.de**

- Find updated information and materials on the website **https://osm.hpi.de/bs2**

- **Office hours are currently unavailable**

- **Contact us, if you want us to set up any social media channels to supplement the course**

Summary

- For general questions: E-Mail us at **bs@hpi.de.**

- Find updated information and materials on the website **https://osm.hpi.de/bs2.**

- Check out **recordings** on **https://tele-task.de.**

- **Engage** with your fellow students in social media channels of your choice.

- Most importantly: **Enjoy the Course!**