



**Kauno  
fakultetas**

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# **Operational Systems and their Security: Course introduction**

# About Me

## **Lecturer:**

PhD. Martas Ambraziūnas;

## **Education:**

Bachelor: Computer Science;

Master: Business Information Systems;

PhD: Computer Science.

## **Work experience:**

Technologies: .Net, C#, F#, SQL server, Oracle DB, MVC, VB6, WPF, Android/Java;

Companies: Nielsen, Lucey Technology, Telesoftas (VIAVI), Vilnius University;

Certifications: OMG, Microsoft;

# About the course structure

According to calendar we have 15 weeks for this course.

**During this time:**

- 8 Lectures;
- 7 Lab assignments ( 6 + 1 Lab or Presentation);
- 1 Midterm assignment;

# About the lectures

- ZOOM;
- Time 08:00 AM;
- Once in two weeks (starting 02.15);
- Presentation slides;
- Demonstration with ISE/IDE;
- Explanation of new Lab assignment;
- QA.

# Lectures topics

1. Definition and purpose of OS [02.15];
2. Definition and purpose of processor and bus [03.01];  
*Introduction to PowerShell scripting;*
3. Definition and purpose of storage (memory) and I/O [03.15];
4. Definition and purpose of memory management [03.22];  
*Introduction to F# scripting;*
5. Definition and purpose of process management [04.12];
6. Definition and purpose of file system [04.26];  
*Introduction to Bash;*
7. OS security [05.10];
8. Retro [05.24];

# Labs topics

## Labs:

1. SysInternals/OS monitoring tools;
2. PowerShell Scripting 1;
3. PowerShell Scripting 2;
4. F# Scripting or C# App;
5. PowerShell Script Integration with F#/C#;
6. Bash Scripting 1;
7. Bash Scripting 2 or Presentation or MemMng App;

## Presentation:

With two topics: about selected OS and about selected OS vulnerability/breach etc..

## Readings:

Operating System Concepts [*Silberschatz, Abraham, Galvin, Peter B., and Gagne, Greg*].

# About the work with Labs

Two weeks for single Lab + 1 week without penalty;

Communication channels:

- Zoom calls and screen sharing (if You are facing blocker);
- Slack/MS teams (fastest way for short questions);
- Emails (Gmail/VU mail) (when there is no possibility for the first two).

*Your task is to raise the questions, my tasks is to help to find the answers;*



# Things to double check before committing Your Lab

- Is it not throwing syntax errors?
- Is it doing what it must?
- Are You following consistent coding standards in Your code?



**IT WORKS**  
*on my machine*





# Labstreaks

You can get bonus for making Your Labs:

- faster than required (committing the Lab before the deadline);
- with extra functionality/different technologies/custom solutions than required;

**Streaks:**

- For **Two** light green Labs:
  - + 1 To any Lab grade;
- For **Five** light green Labs:
  - Skip one Lab (with grade 10);

# About grading

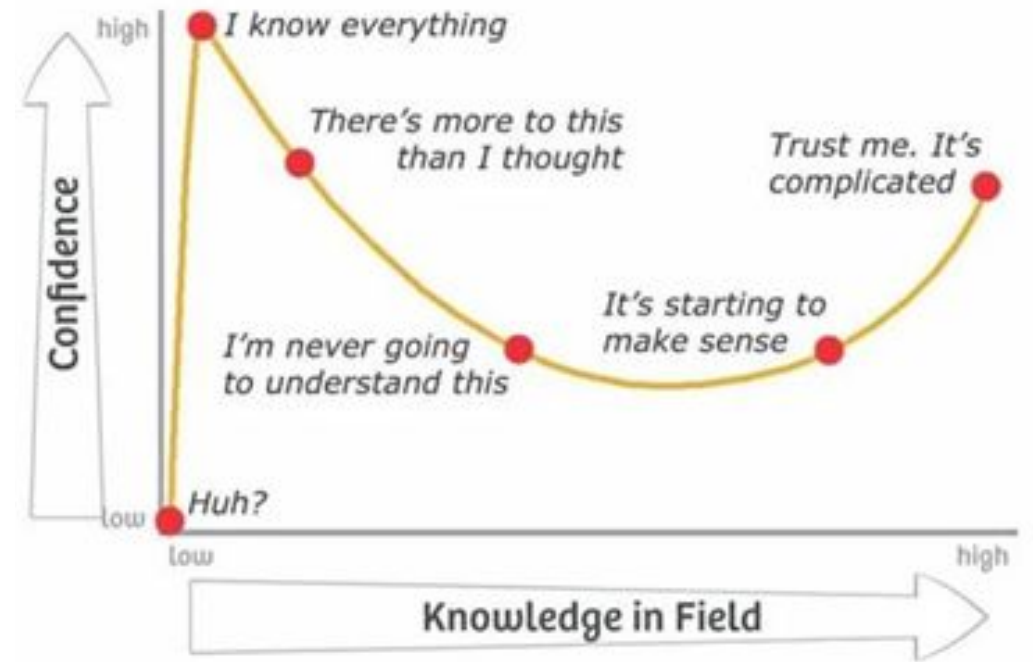
*“There is nothing more unequal than the equal treatment of unequal people”* - Thomas Jefferson

## •Final grade:

- Labs + presentation = 70% (10% per work);
- Midterm exam + Exam\* = 30% (15% per work).

## •Deadlines:

- **Two** weeks for one Lab;
- -2 points if late for **three** or more weeks;
- -5 points if provided after the **end of the semester** (during session).



*Dunning-Kruger effect*

# Rule 9/10

*If the grade for practical work (**labs and presentations**) + **midterm** is 9 or 10 then one can choose to skip exam and keep current grade as the final one.*

## Conditions:

- Labs and Presentations + Midterm grade  $\geq 8.5$ ;
- All tasks completed before **May 24**.

# Important dates

March 29 – April 5

- Easter Holiday;

May 24

- **Final** day for passing **Labs**;

# Communication

## Email:

- [martas.ambraziunas@gmail.com](mailto:martas.ambraziunas@gmail.com) (not VU mail!)

## Lectures:

- Moodle

## Labs:

- All labs should be uploaded to Moodle

## Slack:

- [https://join.slack.com/t/engroup-vu-knf/shared\\_invite/zt-lrur6m3a-PwX6hraB9Q12ks2Lyuej2g](https://join.slack.com/t/engroup-vu-knf/shared_invite/zt-lrur6m3a-PwX6hraB9Q12ks2Lyuej2g)

## Results:

- Moodle (Scroll to the bottom)

# Final notes

Please feel free to contact me at any time by email or Slack;

If You think that labs are not challenging enough: we can agree on some custom work in OS area.

*Good luck and have fun :]*



# Questions

Anything to ask?



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# Contacs

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