

# **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;



You can lead a horse to water, but you can't make him drink.

## 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?

# (ツ) **ITWORKS** on my machine



# Labstreaks

You can get bonus for making Your Labs:

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



# 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 >= 8.5;
- All tasks competed before *May 24*.

# **Important dates**

March 29 – April 5

• Easter Holiday;

May 24

• Final day for passing Labs;

# Communication

**Email:** 

• martas.ambraziunas@gmail.com (not VU mail!)

Lectures:

• Moodle

Labs:

• All labs should be uploaded to Moodle

Slack:

 <u>https://join.slack.com/t/engroup-vu-knf/shared\_invite/zt-lrur6m3a-PwX6hraB9Q12</u> <u>ks2Lyuej2g</u>

**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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