

# PUBLISHED COURSE ANALYSIS



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A course analysis has been carried out and published by the course convener.

The Karlstad University evaluation tool is owned by the Professional Development Unit and is managed by the systems group for educational administration.

*Ethical hacking, 7.5 ECTS cr. (DVAD25)*  
Course convener: Leonardo Martucci

## Basic LADOK data

Course Code: DVAD25  
Application Code: 41628  
Semester: VT-23  
Start Week: 202303  
End Week: 202312  
Pace of Study: 50%  
Form of Study: Campus

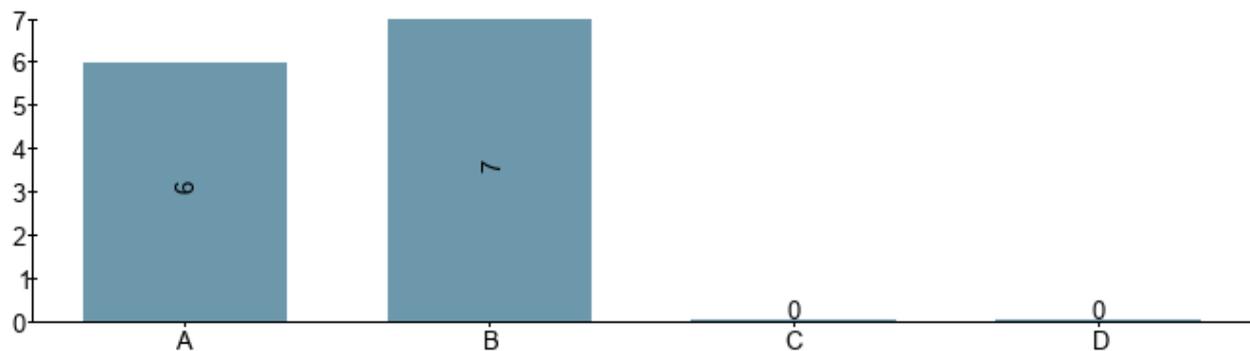
## Course Data

Number of questionnaires answered: 13  
Number of first registrations<sup>[1]</sup>: 26

## Changes suggested in the course analysis of the previous course date:

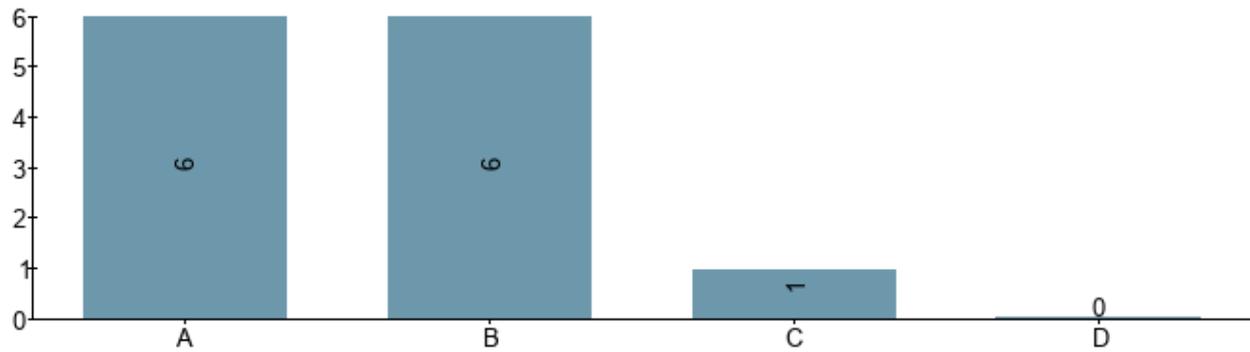
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1. The contents and structure of the course has supported the achievement of the learning outcomes



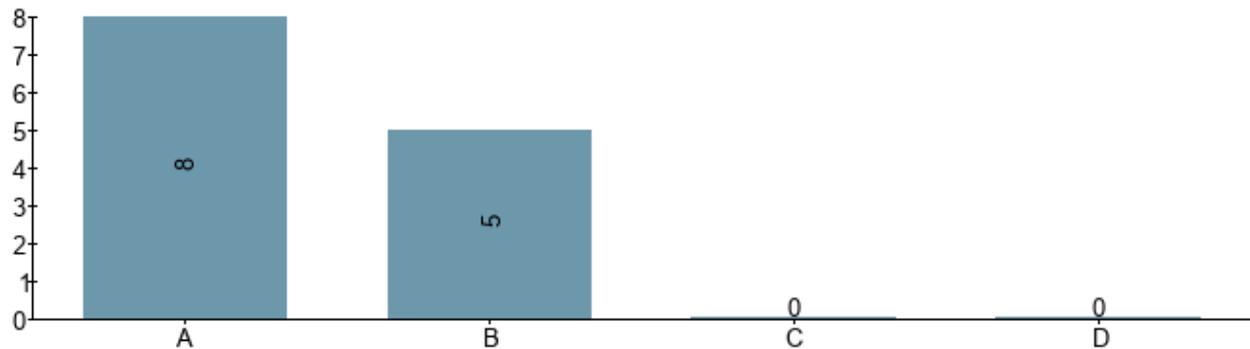
- A) To a very large extent
- B) To a large extent
- C) To some extent
- D) To a little extent or not at all

2. The assessments included in the course have given me the opportunity to demonstrate my achievement of the learning outcomes



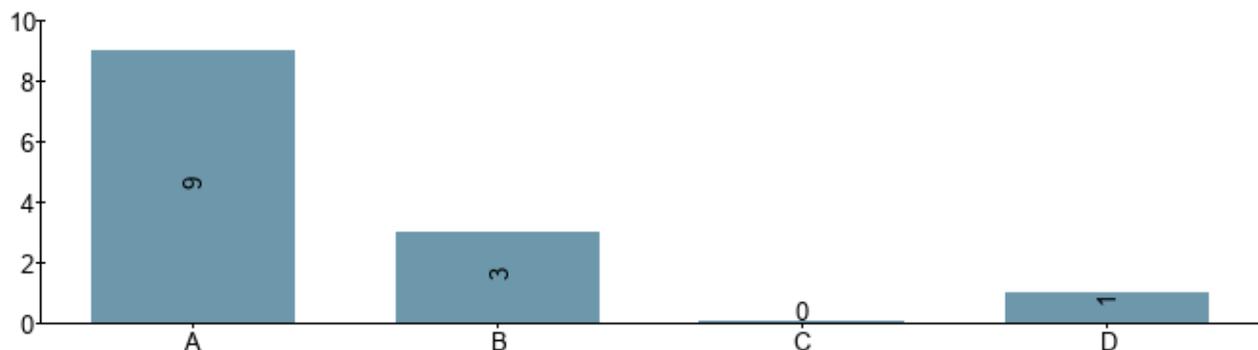
- A) To a very large extent
- B) To a large extent
- C) To some extent
- D) To a little extent or not at all

3. My workload (including scheduled activities and independent work) during the course has been



- A) 40 hours per week or more (or 20 per week or more for courses given as half-time studies, 10 hours or more for courses given as full-time studies)
- B) Between 30 and 39 hours per week (or between 15 and 19 hours for courses given as half-time studies, or between 10 and 14 hours for courses given as full-time studies)
- C) Between 20 and 29 hours per week (or between 10 and 14 hours for courses given as half-time studies, or between 5 and 9 hours for courses given as full-time studies)
- D) Less than 20 hours per week (or less than 10 hours per week for courses given as half-time studies, or less than 5 hours for courses given as full-time studies)

4. During the course, I have experienced the reception from teachers and other staff as professional



- A) To a very large extent
- B) To a large extent
- C) To some extent
- D) To a little extent or not at all

**Analysis based on course evaluation, including comments fields. If information has been collected in other ways, it should also be analysed here. Any effect of joint courses should be commented**

on.

The students seem to have liked the course's contents, structure, organization, assessment, and teaching staff. It was the first time this course was given, so the students were warned that hiccups were likely to happen. The students were highly engaged for most of the course.

As an indication, over half of the active eligible students answered this questionnaire (13/21, the three Erasmus students did not receive the link to the course evaluation, and five registered students were no-shows). To quote directly student:

- "One of the best courses I've had."
- "Very good course, you all seemed happy and interested to lecture it as well?"

And specifically concerning the course organization:

- "I really liked working in the cyberspace when it worked as intended. Using situations from the podcast episodes to discuss ethics is nice. Super impressed on the amount of guest lectures, really enjoyed each one of them!"

The continuous evaluation instead of a final exam was highly praised. Here is a student quote:

- "I really like the structure of the course as we were encouraged to continuously prove our participation and commitment. It's easier to keep up with the work as we are required to prove our work every week."

And some of the comments about the teaching staff:

- "all the course is very good including the lab session with leonardo was very nice"
- "The teachers were very nice."
- "All the staff of ethical hacking was amazing and very helpful and good support for any question"

The course workload was not well distributed and was above expectations. The students pointed out that some flags require a week to capture, while others less than two hours. That is a problem that we need to address.

- "Of course this depended on how hard the flag was but overall I think I spent 40h a week"
- "It depends on the time spent to find the flag so of it less than two hours other require a week!"

As for future instantiations of this course, here is a quote of a student:

- "I wish all the best to this kind of courses it very interested.."

### **Suggestions for changes to the next course date.**

During the course, we actively engaged with the students to find out the problems of the course, and how could they be solved. Here are the suggestions to improve the course, and the quotes from some students about what could be improved:

- "Better platform than canvas. Improve some flag topics and descriptions. More ethics. More structured flag reports, maybe supply students with a debrief guide to make the process smoother and to let them know what to expect. Different worlds with different reset times. Add a part about mitigation techniques and solutions to improve security. Team challenges. Password manager flag. Be more clear that there is important information spread out through the course pages on canvas."
- "During the course there were groups to which you were added after completing flags. But failing to complete a flag in time meant that you could not enter the group as you could no longer hand in the flag. Some information about the flags ahead was mentioned in these groups so it would be good to add everyone after the flag presentations or give the information in some other way. Sometimes there were opportunities to "piggyback" off others work by looking at files added to servers."
- "It would be nice if something like an explanation to the different exploits we used were given by the lecturers during class as some of them require no understanding of the exploit to use. For example, get-rekt-linux-hardened can be used simply by compiling and running it, but a lecture on the exploit during flag presentations would have been cool. Also the servers need more power, and google services don't seem like a sustainable solution economically. Maybe make some group work around ethics to engage everyone (shy guys) in that subject. And fix the flag topics! :)"

Concerning the student suggestions, we are already planning to move part of the infrastructure out of Canvas, which will solve problems related to students not being added to groups, or not having access to the debrief information. We will revisit the distribution of points per flag, the content of the hints, the flag topics, and the distribution of the workload. We also want to investigate how to include more details about the hacking tools in the flag report lectures and evaluate if it is possible to extend the material on ethics.

