

Funded by the Erasmus+ Programme of the European Union

**Project title**: Cyber Security – Training Platform

**Number of students** (minimum 2)**: 2-10**

**Project duration** (1-6 months): 6

**Project frame** (Bachelor/Master, small project): Bachelor, Master, Small Project.

**Background:**

Together with a number of other academic and industrial partners, Aalborg University has taken the lead in developing a National Training Platform for Cyber Security. The platform provides basically a safe and secure environment, where the students can perform various exercises (we call them challenges) related to cybers security – both on the defensive side (e.g. analysis of network traffic or detection of attacks) and on the offensive side (e.g. stealing usernames/passwords, performing phishing attacks, or simply identifying and compromising vulnerable machines or devices. The platform is based on a virtualisation environment, and the focus has been on making it easy to use for both students and teachers – in particular, users can access everything in a browser. Through a simple registration process, they get access to a Kali Linux Windows (known for its penetration testing capabilities), from where they can explore their own virtual network including vulnerable machines. It is currently running on servers at Aalborg University, but there have been no performance issues accessing the exercises from abroad. We believe we have made a world class setup.

**The challenge:**

The platform was build (and partially funded from) a project that is finishing by the end of 2018. We are sure that we have build something valuable, and that it can be used for multiple reasons including: (1) Increase awareness about cyber security education by making events for high schools students, (2) training of university students and students of continued education, (3) training of people in companies. The platform is working well, but we need more “challenges” in order to keep the momentum. While the “obvious” project is to develop challenges for the three segments, we are very much interested in an analysis of where the platform can be used better, and if there is a market that could help us continue both platform and associated services. Therefore, ideally, the project would be carried out in collaboration between technical students and more business-oriented students. As we see it, the challenges include:

* Analysing the market for security training, and recommending one or more business models where it fits. Aspects include collaboration with companies in training and consultancy of cyber security, the question of whether we should make it available as open-source, whether we should offer subscriptions or pay-per-use, or whether we should simply make it freely available and benefit from setting the standard (and much more).
* Understanding how good challenges can be developed for the various segments. This is not only about making something technical, but also about understanding the needs of the different groups (related to the business aspects), and finding the right level(s).
* A more technical challenge is really to expand our collection of challenges including making these fun, challenging and beneficial for the learners at the same time. We have found it particular challenging to provide good hints for those facing difficulties – without revealing too much and ruining the experience.

**The companies:**

The main stakeholder is Aalborg University, but the project is carried out in collaboration with a number of smaller companies working with cyber security training. The companies involved will depend on the profiles of the students (this will also determine the project scope).

**Supervisor:**

Jens Myrup Pedersen ([jens@es.aau.dk](mailto:jens@es.aau.dk)) is Associate Professor at Aalborg University. He has been working with cyber security during the last 6-7 years. In addition to research on detection of attacks and malicious activities based on traffic analysis, he has been active in building a community of people (both students and professionals) with an interesting in cyber security.

**Candidate background:**

We are looking for candidates at all levels (B.Sc. and M.Sc.), but will adjust the scope according to the interests and capabilities of students. We are particularly interested in students with knowledge of at least one of the following topics:

* Business IT, Business Informatics and similar (for market analysis and business models)
* Entrepreneurship (to explore if/how we could monetize as a startup)
* Computer Science (for challenges)
* Computer Engineering (for challenges)
* Computer networks (for challenges)
* Knowledge about user interface design or design of computer games (for contributing to the optimal user experience)

Of course an interest in or curiosity about cyber security is a big advantage!

**References and complementary description:**

**We don’t have much documentation online, but our Facebook group (hack.aau.dk – it is a closed group, but just apply for membership) gives a good insight to some of what we are doing.**