

Intro to Security Engineering: Syllabus

January 16, 2020 / 12:00 PM - 1:00AM EST

Important Links

[Workshop Hackpack](#)

Pre-workshop checklist, and resources to explore during and after the workshop.

[Hack the North 2020++ Event Schedule](#)

Check this out to stay up-to-date on activities, workshops, and other key happenings this weekend.

Motivator

In this workshop, you are a security engineer who is fighting off cybercriminals! Security engineers protect systems from threats that might expose sensitive data or break critical processes. First, you will learn to think like your adversary by executing a brute-force attack and a SQL injection attack. Then you will learn how security engineers protect against those attacks and many more. Join us to learn about all aspects of security, from password managers to cybercriminal motivations.

Prerequisite Knowledge

In order to get the most out of this workshop you should be comfortable with the following concepts:

- Software engineering fundamentals (functions, booleans, strings, etc.)
- Basic understanding of tables in relational databases (optional - will be reviewed in the workshop)
- Basic understanding of SQL syntax (optional - will be reviewed in the workshop)

Learning Outcomes

This is what you will walk away from the workshop able to do:

- Understand why security is important and how it can be breached
- Explain what a security engineer does
- Understand how to conduct penetration testing
- Compromise a system using a brute-force password attack, and patch the vulnerability
- Compromise a system using a SQL injection attack, and patch the vulnerability

Timeline (1 hour)

Time	Module	Description
5 min.	Introduction	Intro to the workshop and going over the agenda.
10 min.	Introduction to security engineering	Explaining basic security engineering concepts and models.
5 min.	Introducing security concepts necessary to solve the first task	Background knowledge on weak credentials and how to exploit them.
5 min.	Time to solve the first task	Try a weak credentials attack on your own.
5 min.	Explaining the solution to the first task	Solution to the weak credentials attack.
5 min.	Introducing security concepts necessary to solve the second task	Background knowledge on databases, SQL syntax and SQL injection attacks.
5 min.	Time to solve the second task	Try a SQL injection attack on your own.
5 min.	Explaining the solution to the second task	Solution to the SQL injection attack.
10 min.	Workshop summary and Q&A	Please feel free to ask questions throughout the workshop. During this time, the workshop helpers and I will answer any remaining questions from participants.