EXPANDED COURSE DESCRIPTION
ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
Lassonde School of Engineering
Electrical Engineering Computer Science
LE / EECS 4482 3.0 SECTION A
COMPUTER SECURITY MANAGEMENT
FALL 2019 / WINTER 2020

Last Modified Date: 08/28/2019

COURSE CALENDAR DESCRIPTION

Examines the organizational policy and management aspects of computer security. It covers topics such as policies, procedures, and standards related to access and use, compliance and privacy, risk management and incident response. Prerequisites: 12 credits at the 3000-level.

INSTRUCTOR(S)

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<th>Name</th>
<th>Section / Format / Term</th>
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<tbody>
<tr>
<td>Vlajic, Natalija</td>
<td>Sec. A / LECT / F</td>
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ADDITIONAL INFORMATION

This course provides a comprehensive coverage of theoretical and practical aspects of network security and forensics that have not been discussed in previous courses. The emphasis is on the limitations and attacks against network protocols and architectures most widely used in practice, as well as the best known detection, prevention and remediation techniques against these attacks. The course also has a strong emphasis on hands-on learning either by using already existing real-world tools or by developing new tools using Python libraries.

Familiarity with the TCP/IP protocol suite and basic computer networking concepts is required. Familiarity with concepts taught in other security courses is helpful but not required.

TOPICS COVERED INCLUDE

- Analysis of weaknesses and attacks against the most common Internet protocols such as IPv4, IPv6, TCP, ICMP, ARP, DHCP, DNS.
- Security protocols including IPSec, TLS, DNSSEC.
- Network scanning and OS fingerprinting.
- Packet inspection and log analysis.
- Python/Scapy programming for packet and log manipulation.
- Virtual private networks (VPNs), tunneling.
- Network design, firewalls, packet filters, proxies, NAT, ingress and egress filtering.
- Intrusion detection systems.
- Security in wireless networks, WEP, WPA, IEEE 802.1x.
- Cloud security.
- Network forensics investigation methodology and tools.

Prerequisites: 3213 or 3214.

ACADEMIC INTEGRITY LINKS

- Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
- Academic Integrity - http://lassonde.yorku.ca/academic-integrity
STUDENT LINKS

• Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
• Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
• Academic Accommodation for Students with Disabilities - http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/
• Student Accessibility Services (SAS) - https://accessibility.students.yorku.ca/
• York University’s Policies on Sexual Violence - http://secretariat-policies.info.yorku.ca/policies/sexual-violence-policy-on/
• York University’s Policies on Gender/LGBTQ*/Positive Space - http://rights.info.yorku.ca/lgbtq/

LAND ACKNOWLEDGEMENT

• We acknowledge our presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the New Credit First Nation. This territory is subject of the Dish With One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.
• The Indigenous Framework for York University: A Guide to Action can be found here: http://indigenous.info.yorku.ca/
• Meaning of a land acknowledgement: http://healthydebate.ca/opinions/indigenous-land-acknowledgements

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

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