

UNDERSTANDING AND ADDRESSING CYBERSECURITY CHALLENGES

FUNDAMENTAL CONCEPTS AND PRACTICAL TECHNIQUES

COURSE DESCRIPTION

The growing sophistication of cyber-attacks and our increased reliance on information technology has made cybersecurity a top concern for businesses, government agencies and even ordinary citizens.

This course provides an introduction to the broad field of cybersecurity and the technological safeguards that can be used to protect information technology systems. It starts with the importance of a security mindset and the basic principles that must be adhered to for securing systems.

It then explores software and network vulnerabilities that are often exploited by attackers. A variety of technological defenses, including systems and network security solutions and cryptographic techniques for secure network communications, will be covered in detail. Concrete examples will be used to illustrate and reinforce important concepts.

MAJOR TOPICS LIST

MODULE 1 2.5 DAYS

- 1 Cyber security basics: threats, vulnerabilities and attacks, data and system-centric view of security, secure systems design principles.
- 2 Software security: software vulnerabilities and their exploitations, viruses and other forms of malicious software, vulnerability analysis, secure software design.
- 3 Operating systems as the trusted computing base: OS security requirements and challenges, isolation and least privilege, virtualization and its relevance to security, trustworthy computing evaluation criteria.
- 4 Authentication and authorization: Authentication methods and their security evaluation, access control models and their implementation, discretionary and mandatory access control. Data labeling and protection in enterprise environments.

MODULE 2 2.5 DAYS

- 1 Cryptography basics: encryption and hashes, shared and public key cryptosystems, trust, certificates and certificate authorities, digital signatures.
- 2 Network security: network threats, firewalls, intrusion detection and prevention, IPSEC, DNS, VPN and HTTPS.
- 3 Web and mobile security.
- 4 Looking ahead: cyber-physical systems security, privacy in the online world, etc.

PROFESSORS



PROFESSOR MUSTAQUE AHAMAD, PH.D.

Dr. Mustaque Ahamad is a professor of Computer Science at the Georgia Institute of Technology, Atlanta, GA. In his thirty-year academic career at Georgia Tech, Dr. Ahamad has led numerous research projects and educational initiatives. His research interests include computer security and distributed and dependable systems. He has published over one hundred research papers

in these areas, and has advised over two dozen doctoral students. Dr. Ahamad led the effort to create a broad and comprehensive cyber security curriculum and a graduate degree program in this area at Georgia Tech. Dr. Ahamad served as director of the Georgia Tech Information Security Center from 2004 to 2012. He helped develop several major research thrusts in areas that include security of emerging converged communication networks and applications, identity and access management and security of healthcare information technology systems. He co-founded Pindrop Security in 2011 and serves as its chief scientist.

Dr. Ahamad received his Ph.D. in Computer Science from the State University of New York at Stony Brook in 1985. He received his undergraduate degree in electrical and electronics engineering from the Birla Institute of Technology and Science, Pilani, India.



DR. WENKE LEE

Dr. Lee is a professor of Computer Science at the Georgia Institute of Technology, Atlanta, GA, where he holds the John P. Imlay Chair II. He also serves as Co-Director of Georgia Tech's Institute for Information Security and

Privacy. Dr. Lee's research is in the areas of systems and network security. His current research projects are in botnet detection and attribution, malware analysis, virtual machine monitoring, mobile phone security, and detection and mitigation of information manipulation on the Internet, with funding from NSF, DHS, DoD, and industry. Dr. Lee has published over 100 articles with more than 40 of them cited more than 100 times. In 2015, he received the Internet Defense Prize from Facebook and USENIX for one of his papers. In 2006, Dr. Lee co-founded Damballa, Inc., a spin-off from his lab that focuses on botnet detection and mitigation.

Dr. Lee received his Ph.D. in Computer Science from Columbia University, New York, M.S. from City College of New York, and B.S. from Sun Yat-Sen University, Guangzhou, China.



DATES

Monday December 4th, 2017
Friday December 8th, 2017



VENUE

INTEL, San Antonio de Belén



SCHEDULE

De 8:00 a.m - 4:00 p.m



COURSE FEE

\$1,800

Georgia Tech Professional Education

STUDENT BACKGROUND

The course is designed for attendees who either have an academic background in computer science or related disciplines or have professional experience in developing / managing information technology systems.

FURTHER INFORMATION AND COURSE ENROLLMENT

Please contact María José Cantero at

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