



CYBERSECURITY

TECHNOLOGY, APPLICATION AND POLICY

COURSE NAME: Cybersecurity: Technology, Application and Policy

COURSE STARTS: MARCH 14, 2017

DURATION: 6 WEEKS

COURSE INFORMATION ONLINE: digitalprograms.mit.edu/cybersecurity

LOCATION: Online **CEUs:** 1.2 **COST:** \$595 **CONTACT:** mitprofessionalx@mit.edu

COURSE DESCRIPTION

This online program will explore fundamental technologies and applications in Cybersecurity. By examining security challenges in hardware, software, and cryptography, this program will introduce the latest research that can help organizations move from 'patch and pray' defenses to security 'by default'. In addition, this course will also use case studies to illustrate the impact of the emerging technologies and look at the policy implications impacting the field. The program will be taught by a team of world-renowned experts from the MIT Computer Science and Artificial Intelligence Laboratory (CSAIL).

KEY BENEFITS

During this self-paced, online course, you will:

- Become a subject matter expert on how major security technologies can both impact and protect your business
- Engage confidently on cybersecurity challenges, emerging technologies, and how those technologies can address business problems
- Gain the tools and knowledge to develop a concrete strategic cybersecurity action plan for your organization

"The course has provided useful information and has helped me bridge a lot of gaps I had concerning Cybersecurity. It has been useful overall increasing my level of confidence in related topics."

—KONSTANTINOS K., RESILIENCY SERVICES LEADER, DATA CENTER MANAGER, IBM

COURSE FORMAT

The course is held over six weeks and will provide the following:

- Five modules covering 14 topic areas with 12 hours of video
- Assessments to reinforce key learning concepts of each module
- Case studies
- Discussion Forums for participants to discuss thought provoking questions posed by the MIT faculty teaching the course; share, engage, and ideate with other participants
- Community Wiki for sharing additional resources, suggested readings, and related links

EARN A CERTIFICATE AND CEUS

Participants who successfully complete all course requirements are eligible to receive a Certificate of Completion and 1.2 CEUs.

Massachusetts Institute of Technology

This is to certify that
John Q. Professional



has successfully completed
**Cybersecurity:
Technology, Application and Policy**

WHO SHOULD ATTEND

This course is suitable for anyone with a bachelor's level education in computer science. Because the application of the course is broad, it can apply to both early career professionals as well as senior technical managers. To ensure participants understand how the concepts apply to business, at least three years of work experience is recommended. Teams of individuals from the same organization are also encouraged to apply.

Participants may include:

- Engineers who need a greater understanding of the latest cybersecurity technologies
- Technical managers who want to familiarize themselves with emerging technologies
- Entrepreneurs who would like to gain insights into trends and future capabilities of cybersecurity technology
- Managers/C-level executives with a background in computer science who would like a greater understanding of the cybersecurity landscape



MODULES, TOPICS, AND FACULTY

Module One: Introduction

- Course Introduction – Howard Shrobe
- Security Overview – Sridhi Devadas

Module Two: Systems Security

- Hardware Architectures for security – Howard Shrobe
- Operating System Security – Frans Kaashoek
- Verifying Systems – Adam Chlipala
- Secure Programming Languages – Armando Solar-Lezama

Module Three: Cryptography and Network Security

- Public Key Cryptography – Ron Rivest
- Multi-party Computation, Secret Sharing, Distributed Trust – Shafi Goldwasser

- Homomorphic and Functional Encryption – Vinod Vaikuntanathan
- Network Security and Protocol Design – Dave Clark

Module Four: Case Studies

- Bitlocker – Nickolai Zeldovich
- Resilient Software – Martin Rinard
- Web Security – Daniel Jackson
- Mobile Phone Security – Nickolai Zeldovich

Module Five: Policy

- Management, Strategy and Organizational Issues – Michael Siegel
- The Landscape of Cyber Policy – Danny Weitzner



Daniela Rus | Director
MIT Computer Science and Artificial Intelligence Laboratory

FACULTY CO-DIRECTOR



Howard Shrobe | Principal Research Scientist
MIT Computer Science and Artificial Intelligence Laboratory

FACULTY CO-DIRECTOR



Adam Chlipala | Associate Professor
MIT Computer Science and Artificial Intelligence Laboratory



David Clark | Senior Research Scientist
MIT Computer Science and Artificial Intelligence Laboratory



Sridhi Devadas | Professor
MIT Computer Science and Artificial Intelligence Laboratory



Shafi Goldwasser | Professor
MIT Computer Science and Artificial Intelligence Laboratory



Daniel Jackson | Professor
MIT Computer Science and Artificial Intelligence Laboratory



Frans Kaashoek | Professor
MIT Computer Science and Artificial Intelligence Laboratory



Martin Rinard | Professor
MIT Computer Science and Artificial Intelligence Laboratory



Ronald Rivest | Professor
MIT Computer Science and Artificial Intelligence Laboratory



Armando Solar-Lezama | Associate Professor
MIT Computer Science and Artificial Intelligence Laboratory



Vinod Vaikuntanathan | Associate Professor
MIT Computer Science and Artificial Intelligence Laboratory



Danny Weitzner | Principal Research Scientist
MIT Computer Science and Artificial Intelligence Laboratory



Nickolai Zeldovich | Associate Professor
MIT Computer Science and Artificial Intelligence Laboratory



Michael Siegel | Principal Research Scientist
Sloan School of Management
Associate Director of MIT's Interdisciplinary Consortium for
Improving Critical Infrastructure Cybersecurity (IC)³