



# **New Master of Science in Applied Cybersecurity and Digital Forensics**

## **Revised Master of Cyber Forensics and Security**



**IIT School of Applied Technology**  
ILLINOIS INSTITUTE OF TECHNOLOGY



# New Master of Science in Applied Cybersecurity and Digital Forensics

- ◆ Proposal is comprehensive and complete
  - Consistent with existing programs at other institutions
  - Shares courses from Kent Law
  - Meets a clear market demand
    - 36.5% projected growth rate
    - 2 million person shortage in qualified cybersecurity personnel by 2019

# New Master of Science in Applied Cybersecurity and Digital Forensics

- ◆ Research degree requiring a project or a thesis
  - Department already has a large body of published graduate student research in applied steganography and cybersecurity management
  - Supervise M.S. research for joint-degree students from Spain & France
  - Next two tenure-track faculty hires will have significant potential for cybersecurity research

# New Master of Science in Applied Cybersecurity and Digital Forensics

- ◆ PhD faculty concerns
  - Half of full-time ITM faculty hold a PhD
  - Six adjunct faculty members have PhDs
  - No requirement or expectation for PhD faculty for ABET accreditation in cybersecurity
    - Impacts feeder Bachelor of Science in Applied Cybersecurity and Information Technology
- ◆ Substantive research degree is necessary to attract top cybersecurity faculty talent

# Master of Cyber Forensics & Security

- ◆ Changes allow delivery of degree entirely online
  - University of Maryland has online M.S. degrees in Cybersecurity Management & Policy and Cybersecurity Technology with over 12,000 students enrolled
- ◆ Degree retains research option
- ◆ Law classes in current degree are replaced with courses in Legal & Ethical Issues and Digital Evidence

# Need for Degrees (NICE)

Source: National Initiative for Cybersecurity Education



## 1.5 Million

**MORE** cybersecurity professionals will be needed to accommodate the predicted global shortfall by 2020

Source: (ISC)<sup>2</sup> 2015 Global Information Security Workforce Study

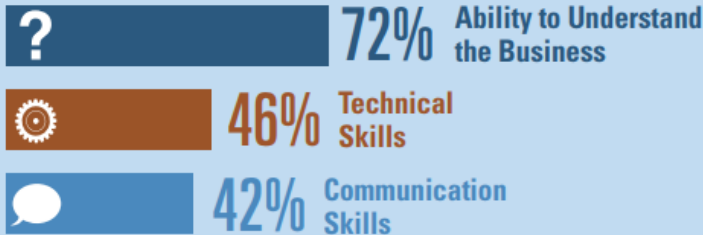


## On average, 52%

of IT professionals surveyed stated fewer than **25%** of all applicants were qualified

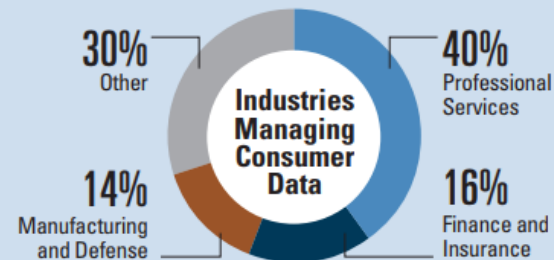
Source: State of Cybersecurity: Implications for 2015:  
An ISACA and RSA Conference Survey

The biggest skill gaps of today's cybersecurity professionals



Source: State of Cybersecurity: Implications for 2015 An ISACA and RSA Conference Survey

Fastest cybersecurity demand sectors are in industries managing consumer data



Source:  
Job Market Intelligence:  
Cybersecurity Jobs, 2015–2016  
Burning Glass Technologies

## Cybersecurity

job postings took  
**8%** longer to fill than  
IT job postings overall

Expertise required for various cybersecurity roles in demand

- Information Security
- Network Setup
- Auditing
- Network Protocols



## Approximately 10%

of the current cybersecurity workforce are comprised of women

# Need for Degrees

## ◆ Armed services

- Services require graduate degrees for O-5s
  - They contract out delivery of these degrees
- Massive growth in U.S. Cyber Command
  - U.S. Army Cyber Command
  - U.S. Navy Fleet Cyber Command / U.S. 10th Fleet
    - 16,000 personnel
    - Navy Information Forces
    - Information Warfare Corps
  - Twenty-Fourth Air Force (24 AF)
    - 14,000 personnel
  - U.S. Marine Corps Forces Cyberspace Command (MARFORCYBER)



# Role in Cybersecurity

- ◆ Existing core for cybersecurity at Illinois Tech
- ◆ National Center of Academic Excellence in Cyber Defense Education
- ◆ SAT Center for Cyber Security & Forensics Education (C<sup>2</sup>SAFE)
- ◆ ForenSecure Conference in 15<sup>th</sup> year
- ◆ Most published peer-reviewed research in applied steganography—from a *non-research* department





# Role in Cybersecurity

- ◆ Available DoD and NSF scholarship opportunities due to our status as a National Center of Academic Excellence in Cyber Defense Education
  - 2 year or 3 year, full tuition, books, and \$33,000/year grad student stipend
  - Only open to U.S. citizens/permanent residents
  - Require 1-for-1 year payback



# Role in Cybersecurity

Illinois Tech cybersecurity course offerings by course subject area:

Level →	Undergrad	Graduate	Total
CS	1	2	3
CSP	0	1	1
ECE	1	3	4
ITM	7	14	21
LAW	0	6	6
PA	0	2	2

(PA courses are cross-listed with ITM)

# 800/801 Proposals

- ◆ Online under “Draft Documents” at <http://www.itm.iit.edu/faculty/#draft>
- ◆ Also includes this presentation

The End



Questions?

