Graduate Certificate in Cyber Security

Program Collaborative Graduate Certificate in Cyber Security

Admission Requirements :

1. B.S. or equivalent degree with a GPA of 2.75 or more from an educational institution of recognized standing.
2. At least 12 semester hours or equivalent of coursework in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, Information Technology, or Information Systems. An acceptable alternative to the coursework background is one or more years of directly related professional experience.

Curriculum:

Code	Title	Credits
Summer 2017 - North Dakota State University		
CSCI 773 - Foundations of Digital Enterprise (online) - Ken Nygard		3
Fall 2017 - Minot State University		
CSCI 568 - Applied Cryptography (online) - Paul Loree		3
Spring 2018 - University of North Dakota		
EE 590 - Emerging Threats and Defenses (online) - Prakash Ranganathan		3
As early as Summer 2017 or Fall 2018 - NDUS Institutuion		
Elective*		3

*Electives choices likely will include: Data Security; Cyber-Physical Security Systems Algorithms for Threat Modeling and Defenses; Cryptographic Methods; Next Generation E-commerce, and secure software coding.

Three-credit Project Course in Cyber Security with a faculty member mentoring a special project (UND, NDSU, MiSU):

1. EE 590. Information Security and Security Practices (Electrical Engineering, College of Engineering, UND)
2. CSci 783, Principles of Cyber Security (Computer Science, NDSU)
3. CSci 774, Topics of the Digital Enterprise (Computer Science, NDSU)

Course Descriptions

EE 590 Emerging Threats, and Defenses. Cyber-attacks are a serious economic and Security threat. To combat both immediate and future dangers, businesses and governments are investing in Cyber Security. Understanding trends in computer science and how machine learning and anti-malware defenses can respond to threats is a critical component of protecting networks, infrastructure and users. This course explores the growing challenges of securing sensitive data, networks to defend against malicious acts.

CSCI 693. Foundations of Digital Enterprise. This course is designed to familiarize individuals with current and emerging electronic commerce technologies using the Internet.

CSCI 558. Applied Cryptography. Cryptography is an indispensable tool for protecting information in computer systems. This course explains the inner workings of cryptographic primitives and how to correctly use them. Experience with C or C++ programming is required.

Elective. This is an independent study focusing on a particular Cyber related research topic taken at the individual institution that student may have enrolled. Experiential and applied learning are expected outcomes.