Hokkaido University Syllabus					

■ Course Title

Cyber Security Fundamentals

■ Subtitle

■ Instructor (Institution)

Yoshikazu MIYANAGA (Faculty of Information Science and Technology)

■ Other Instructors (Institution)

Yoshikazu MIYANAGA (Faculty of Information Science and Technology)
Ren Ping Liu
Priyadarsi Nanda

■ Course Type			■ Open To Other Faculties / Schools		OK
■ Year	2019	■ Semester	2nd Semester	■ Course Number	215604
■ Type of Class	Lecture	■ Number of Credits	1	■ Year of Eligible Students	～
■ Eligible Department / Class			■ Other Information		

■ Numbering Code

■ Major Category Code	■ Major Category Title

■ Level Code	■ Level
5	Specialized Subjects (basics) in graduate level (Master's Course and Professional Course), Inter-Graduate School Classes

■ Middle Category Code	■ Middle Category Title

■ Small Category Code	■ Small Category Title

■ Language Type

Classes are in English.

■ Key Words

Cyber Security, Secure Web Management, Secure Network, Wireless Security

■ Course Objectives

Cyber Security is composed of technologies, processes and practices designed to protect and defend networks, computers, programs and data from attacks which result in damage or unauthorized access. This course consolidates the student's understanding of cyber security by considering security principles from both a people management and a technical perspective.

■ Course Goals

By the end of this course you will be able to
1. know the basic structure of Cyber security.
2. explain many applications by using Cyber security.
3. present the behavior of Cyber security clearly.

Course Schedule

1. Lecture-1: a. Cyber Security Introduction, b. Security trends and attack types, Basic Information Security Model
2. Lecture-2: a. Security issues with web browser and web services, b. SSL and TLS protocols, DNS Security
3. Lecture-3: a. TCP/IP based security; Understanding TCP, IP, MAC, ARP based attacks
4. Lecture-4: a. OS Securities; Windows and Linux security
5. Lecture-5: a. Key Management Protocols, b. X 509, Kerberos and CA
6. Lecture-6: a. Access Control, Wireless and Smart Device Security
7. Lecture-7: a. Intrusion Detection and Prevention
8. Lecture-8: a. Firewalls and Social Engineering Security, b. Course Wrap up

Homework

It is required for students to make enough preparation and review before and after each lecture. For each lecture, 90 min preparation and 90 min review are required.
Lecture materials are available on the e-Leaning of Hokkaido University.

Grading System

Students whose attendance rate is less than 70% cannot get any evaluation. Evaluation is based on the term report (90%) and the lecture participation (10%). By the term report, students' deep understanding of a specific technology and presentation skills are evaluated. The evaluation is based on 5 grades. The ratio of S is not greater than 15% of registered students. The ratio of S and A is not greater 50% of registered students.

Textbooks

References will be introduced in the lecture

Reading List

Websites

Website of Laboratory

https://csw.ist.hokudai.ac.jp/

Additional Information

Recommended Course (Course highly recommended to be taken together with this course):
1. Wireless Sensor Networks and IoT
2. ABC of Information Science and Technology: Introduction to Artificial Intelligence, Big Data, and Cybersecurity for Graduate Students

Update

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