

北海道大学シラバス

科目名

Cyber Security Fundamentals

講義題目

責任教員 (所属)

宮永 喜一 (大学院情報科学研究院)

担当教員 (所属)

宮永 喜一 (大学院情報科学研究院)

Ren Ping Liu (ソニー工科大学)

Priyadarsi Nanda (ソニー工科大学)

科目種別	情報科学院専門科目			他学部履修等の可否	可
開講年度	2019	期間	2 学期	時間割番号	215604
授業形態	講義	単位数	1	対象年次	～
対象学科・クラス				補足事項	
ナンバリングコード					
大分類コード	大分類名称				
レベルコード	レベル				
5	大学院 (修士・専門職) 専門科目 (基礎的な内容の科目)、大学院共通授業科目				
中分類コード	中分類名称				
小分類コード	小分類名称				
言語	英語で行う授業				

キーワード

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

授業の目標

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.

到達目標

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.

■ ■ 授業計画

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

■ ■ 準備学習(予習・復習)等の内容と分量

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-Learning of Hokkaido University.

■ ■ 成績評価の基準と方法

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.

■ ■ テキスト・教科書

References will be introduced in the lecture

■ ■ 講義指定図書

■ ■ 参照ホームページ

■ ■ 研究室のホームページ

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

■ ■ 備考

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

■ ■ 更新日時

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