北海道大学シラバス

| 科目名 |
| --- |
| Cyber Security |
| 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 )<br>Ren Ping Liu ( ｼﾄﾞﾆｰ工科大学 )<br>Priyadarsi Nanda ( ｼﾄﾞﾆｰ工科大学 )<br>Ying He ( ｼﾄﾞﾆｰ工科大学 ) |

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| 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 | １学期 | 時間割番号 | 215605 |
| 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

Internet, Cybersecurity, IoT, Secure Coding, Forensics, Cyber Law

## 授業の目標

Cyber security is a major issue for enterprises, with breaches of security, possibly being punished by legal sanctions, financial loss, or loss of customer confidence.
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. The course is designed carefully to reflect upon experiences learned from academics, researchers and industry professionals and disseminate knowledge across a broader learner’s community to prepare them in a way reflecting and managing current and future challenges in the area of cyber security. Students doing this course will be well placed to contribute to the Cyber Security solution of a modern organization.

## 到達目標

This course aims at students' understanding of several network architectures of wide area network, local area network etc. with cybersecurity. It is expected for the students to obtain basic knowledge for creating novel applications, systems, and services over new secure networks. Through this course, in addition, it is expected for the students to become able to explain the recent security issues related to the network.

## 授業計画

1. Lecture1: Cyber Security strategy and Governance
2. Lecture2: Cyber threat and mitigation strategy
3. Lecture3: Cyber Law and Data Protection Framework
4. Lecture4: Cyber Threat Intelligence
5. Lecture5: Secure Coding practice
6. Lecture6: Cyber Forensics
7. Lecture7: Penetration testing
8. Lecture8: Security Engineering

## 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-Leaning 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

This course will be provided as part of the Hokkaido Summer Institute.
For more information (invited lecturers, course details, etc.), please visit the website below:
https://hokkaidosummerinstitute.oia.hokudai.ac.jp/courses/CourseDetail=G080

## 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. Software Defined Networks
2. Blockchain

## 更新日時

2019/02/04 10:47:52

| Hokkaido University Syllabus | | | | | |
|---|---|---|---|---|---|
| Course Title | | | | | |
| Cyber Security | | | | | |
| Subtitle | | | | | |
| | | | | | |
| Instructor (Institution) | | | | | |
| Yoshikazu MIYANAGA ( Faculty of Information Science and Technology ) | | | | | |
| Other Instructors (Institution) | | | | | |
| Yoshikazu MIYANAGA ( Faculty of Information Science and Technology )<br>Ren Ping Liu<br>Priyadarsi Nanda<br>Ying He | | | | | |
| Course Type | | | | Open To Other Faculties / Schools | OK |
| Year | 2019 | Semester | 1st Semester | Course Number | 215605 |
| 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

Internet, Cybersecurity, IoT, Secure Coding, Forensics, Cyber Law

## Course Objectives

Cyber security is a major issue for enterprises, with breaches of security, possibly being punished by legal sanctions, financial loss, or loss of customer confidence.
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. The course is designed carefully to reflect upon experiences learned from academics, researchers and industry professionals and disseminate knowledge across a broader learner’s community to prepare them in a way reflecting and managing current and future challenges in the area of cyber security. Students doing this course will be well placed to contribute to the Cyber Security solution of a modern organization.

## Course Goals

This course aims at students' understanding of several network architectures of wide area network, local area network etc. with cybersecurity. It is expected for the students to obtain basic knowledge for creating novel applications, systems, and services over new secure networks. Through this course, in addition, it is expected for the students to become able to explain the recent security issues related to the network.

## Course Schedule

1. Lecture1: Cyber Security strategy and Governance
2. Lecture2: Cyber threat and mitigation strategy
3. Lecture3: Cyber Law and Data Protection Framework
4. Lecture4: Cyber Threat Intelligence
5. Lecture5: Secure Coding practice
6. Lecture6: Cyber Forensics
7. Lecture7: Penetration testing
8. Lecture8: Security Engineering

## 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

This course will be provided as part of the Hokkaido Summer Institute.
For more information (invited lecturers, course details, etc.), please visit the website below:
https://hokkaidosummerinstitute.oia.hokudai.ac.jp/courses/CourseDetail=G080

## Website of Laboratory

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

## Additional Information

Recommended Course (Course highly recommended to be taken together with this course):
1. Software Defined Networks
2. Blockchain

## Update

2019/02/04 10:47:53