



# Course Syllabus

## COM6505 Network and Security issues for Computing industries

### Introduction

SISUSP is a short-term course-learning program for international students and delivered by Xianda College of Economics and Humanities Shanghai International Studies University. Students get credits transferred towards their home institution when meeting academic requirements in three weeks of study.

Students also are inspired to connect with the local and international community in this program through practical learning that focus on cross-culture, Asian business, rapid development of cities and some of the top enterprises in China.

<b>Academic Level</b>	Postgraduate	<b>Credits</b>	6
<b>Teaching Timetable</b>	TBA		
<b>Instructor</b>	TBA		
<b>Study Mode</b>	<ol style="list-style-type: none"> <li>1. Online</li> <li>2. Face-to-face</li> </ol>		
<b>Campus</b>	<p>No. 390 Tiyuhui East Road, Hongkou District Shanghai 200030, China</p> <p>The course might be moved to online delivery due to COVID-19 pandemic. Students will be notified once the decision is made.</p>		



<b>Credit Hours</b>	The number of credit hours of this course is 40 and equals to the credits of a standard semester-long Australian university course.
<b>Total Contact Hours</b>	<p>The course contains a total of 55 contact hours, which consists of:</p> <ol style="list-style-type: none"> <li>1. Orientation: 1</li> <li>2. Research: 2</li> <li>3. Critical review study: 4</li> <li>4. Lecturing: 26</li> <li>5. Seminars: 2</li> <li>6. Tutorial: 4</li> <li>7. Assignments: 3</li> <li>8. Workshop: 2</li> <li>9. In-class and after-class activities: 8</li> <li>10. Revision: 1</li> <li>11. Final exam: 2</li> </ol>
<b>Required Textbooks</b>	<ol style="list-style-type: none"> <li>1. William Stallings, <i>Cryptography and Network Security: Principles and Practice</i> (4th). Prentice Hall, 1999. 0130914290.</li> <li>2. A. Menezes, P. Van Oorschot, S. Vanstone, <i>Handbook of Applied Cryptography</i> (5th). CRC Press, 0-8493-8523-7.</li> </ol>
<b>Prerequisite</b>	N/A
<p style="text-align: center;"><b>*Important* Academic Integrity</b></p> <ul style="list-style-type: none"> <li>• Academic integrity is <i>‘the expectation that teachers, students, researchers and all members of the academic community act with: honesty, trust, fairness, respect and responsibility.’</i> Breaching academic integrity is also known as ‘academic misconduct’ or ‘academic dishonesty’.</li> <li>• All higher education students are expected to uphold academic integrity during their studies. An important way of upholding your academic integrity is by contacting your teachers or your school if you are having study problems and working with them on solutions. Studying and learning provides the knowledge expected of a graduate from your course but any form of cheating means that you could miss important professional knowledge and practice that you need to succeed in your future career.</li> <li>• Academic dishonesty or cheating includes acts of plagiarism, misrepresentation, fabrication, failure to reference materials used properly and forgery. These may include but are not limited to claiming the work of others as your own, deliberately applying false and inaccurate information, copying the work of others in part or whole, allowing others in the course to copy your work in part or whole, failing to appropriately acknowledge the work of</li> </ul>	



other scholars/authors through acceptable referencing standards, purchasing papers or writing papers for other students and submitting the same paper twice for the same subject.

- The foundation of good academic work is honesty. Maintaining academic integrity upholds the standards of the University.
- The responsibility for maintaining integrity in all the activities of the academic community lies with the students as well as the faculty and the University. Everyone in this community must work together to ensure that the values of truth, trust and justice are upheld.

Academic dishonesty affects the University's reputation and devalues the degrees offered.

- The University will impose serious penalties on students who are found to have violated the Policy. The following penalties may be imposed: Expulsion, Suspension, Zero mark/fail grade, Marking down, Re-doing/re-submitting of assignments or reports, and Verbal or written warning.

## Course Overview

This course introduces the basic concepts of viruses, electronic eavesdropping, and electronic fraud, and covers principles of cryptography and network security. Students will learn how to build security system by examining the cryptographic building blocks of security, and the application of key exchange, secret and public key encryption, digital signatures, protocols and systems. This course will help students to comprehend technical principles underlying network security testing and assurance. This course also considers some applications in the real world, and students will be guided and learn from many real cases during the course. By analysing the advantages, limitations, and failure modes of the existing cryptosystems, students will be able to build a more secure and effective cryptosystem.

## Course Goals

- By the end of this course you should be able to:
- Analyse how the application of key exchange, secret and public key encryption, digital signatures, protocols and systems can protect the security systems.
- Identify The limits of the available information on security systems and then effectively searching and synthesising the information most pertinent.
- Analyse the strengths and weaknesses of a crptosystem, and design and try to build a effective cryptosystem in a team.
- Demonstrate the ability to write reports and make presentations on the complexity of security system design and its related performance, using clear and accurate terms and a language commensurate with the expected level of understanding by stakeholders.



## Class Topics

Day	Chapter
1	Introduction of Network Security
2	Hash Functions and Data Integrity
3	PRNGs & Modes of operation
4	Number-Theoretic Reference Problems
5	Cryptographic Protocols Attacks on DES & Key Management
6	Digital Signatures and Authentication
7	Privacy and Ethics
8	Bitcoins
9	Web Security & Network Protocols
10	Wireless & Hardware security
11	Software Security
12	Cloud Security
13	Politics
14	Revision
15	Final exam



## Assessments:

Class participation 10%

Class works 20%

Critical review 20%

Final exam 50%

## Preparation/Participation and In-class Activities

Throughout the course, we will complete various in class activities. These exercises are tailored towards helping you further understand and apply the key concepts covered in the textbook. Class attendance and participation in session activities are required and rated. There is much more material in your reading assignments than we have time to discuss in class. In-class activities will delve into the most important issues. No makeup assignments are allowed.

Grade	Grade description	Grade scale %
HD	High Distinction	100 - 85
D	Distinction	84 - 75
C	Credit	74 - 65
P	Pass	64 - 50
F	Fail	49 and below

## Grade Descriptors:

### High Distinction 85-100

- Outstanding work that comprehensively attains the required outcome(s) showing superior knowledge, understanding, analysis, critical interpretation, presentation, and originality. Work is well-written and stylistically sophisticated, including appropriate referencing, clarity, and some creativity where appropriate. All criteria addressed to a high level.

### Distinction 75-84

- Excellent work that substantially attains the required outcome(s) showing a high level of knowledge, understanding, analysis, critical interpretation, presentation,



and some originality. Treatment of material evidences an advanced understanding of ideas Demonstration of initiative, complex understanding, and analysis Work is well-written and stylistically strong. All criteria addressed strongly.

#### **Credit 65-74**

- Work that soundly attains the required outcome(s) showing a good level of knowledge, understanding, analysis, presentation, and some evidence of critical interpretation. Treatment of material displays a good understanding of ideas. Work is well-written and stylistically sound, with a minimum of syntactical errors. All criteria addressed clearly.

#### **Pass 50-64**

- Work that satisfactorily attains the required outcome(s), with adequate knowledge, understanding, analysis, and presentation. Treatment of material indicates a satisfactory understanding of ideas. Work is adequately written, with some syntactical errors. Most criteria addressed adequately.

#### **Fail 0-49**

- Work that fails to attain the required outcome(s), lacking in basic knowledge, understanding, analysis, and presentation. Treatment of ideas indicates an inadequate understanding of ideas Written style inappropriate to task; major problems with expression. Most criteria not clearly or adequately addressed.



## About Xianda College of Economics and Humanities Shanghai International Studies University

Xianda College of Economics and Humanities, Shanghai International Studies University, was established in 2004 and was one of the first full-time independent institutions of higher education in Shanghai approved by the Ministry of Education. It now has two campuses: Hongkou and Chongming. Hongkou Campus is located in the heart of northeast downtown in Shanghai, adjacent to Shanghai International Studies University, whereas Chongming Campus is situated in Chenjia Town, Chongming District, with a beautiful neoclassical Tuscan style architecture and unique ecological environment complementing each other.

Benefiting from the support of the excellent teaching faculty and expertise in foreign language teaching and research of Shanghai International Studies University, we have built a talent cultivation system. It lays a strong emphasis on language learning, economics subjects and coordinated development of other disciplines (professional learning and English). Currently, it offers 22 undergraduate programs in six main fields of literature, law, economics, management, education and art, with approximately 8000 full-time undergraduate students.

Adhering to the open mode of running the college, we take the path of globalization of higher education by introducing advanced educational concepts and management modes adopted in leading domestic and foreign universities. We have introduced talented returnees, accounting for more than 50% of the teaching faculty, and established solid, friendly and cooperative partnerships with over 100 prestigious universities in 16 countries and regions, including the United Kingdom, the United States, Canada, Australia, Germany, France, Spain, Switzerland, Japan, Korea, Egypt, Jordan, the United Arab Emirates, Singapore, Hong Kong, China and Taiwan, China. Through programs of credit transfer, co-operative internship, student exchange, government scholarship, dual bachelor's degrees and combined bachelor's and master's degree programs, it offers students with a variety of overseas opportunities to involve them in different international contexts to develop their global outlook and to improve their cross-cultural communication skill.

We embrace students' individuality and enhances their foreign language skills by offering a varied, wide selection of English or bilingual classes.