Tamkang University Academic Year 104, 1st Semester Course Syllabus

Course Title	WIRELESS NETWORK AND MOBILE COMMUNICATIONS SECURITY	Instructor	HWANG REN-JUNN
Course Class	TEIBM1A MASTER'S PROGRAM, DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ Selective ◆ One Semester ◆ 3 Credits

Departmental Aim of Education

Ⅰ. Cultivate the ability to conduct independent research and problem solving.

Ⅱ. Strengthen creativity and research capacity.

Ⅲ. Build profound professional knowledge in computer science and information engineering.

Ⅳ. Engage in self-directed lifelong learning.

Departmental core competences

A. Independent problem solving ability.

B. Independent innovative thinking ability.

C. Research paper writing and presentation ability.

D. Research & development (R&D) ability in information engineering.

E. Project execution and control ability.

F. Lifelong self-directed learning ability.

Course Introduction	This course begins with a general overview of network security, wireless network security and mobile communication security. We focus on the fundamental knowledges of network security, wireless network security and mobile communication security. We also look at some important security protocols of wireless network and mobile communication. Students have to finish the reading assignment before the lecture every week. We discuss these reading assignments in the lecture. There are many quizzes in this course.

The Relevance among Teaching Objectives, Objective Levels and Departmental core competences

I.Objective Levels (select applicable ones) :

(i) Cognitive Domain : C1-Remembering, C2-Understanding, C3-Applying, C4-Analyzing, C5-Evaluating, C6-Creating

(ii) Psychomotor Domain : P1-Imitation, P2-Mechanism, P3-Independent Operation, P4-Linked Operation, P5-Automation, P6-Origination

(iii) Affective Domain : A1-Receiving, A2-Responding, A3-Valuing, A4-Organizing, A5-Charaterizing, A6-Implementing

II.The Relevance among Teaching Objectives, Objective Levels and Departmental core competences :

(i) Determine the objective level(s) in any one of the three learning domains (cognitive, psychomotor, and affective) corresponding to the teaching objective. Each objective should correspond to the objective level(s) of ONLY ONE of the three domains.

(ii) If more than one objective levels are applicable for each learning domain, select the highest one only. (For example, if the objective levels for Cognitive Domain include C3,C5,and C6, select C6 only and fill it in the boxes below. The same rule applies to Psychomotor Domain and Affective Domain.)

(iii) Determine the Departmental core competences that correspond to each teaching objective. Each objective may correspond to one or more Departmental core competences at a time. (For example, if one objective corresponds to three Departmental core competences: A,AD, and BEF, list all of the three in the box.)

No.	Teaching Objectives	Relevance	
		Objective Levels	Departmental core competences
1	1.The difference between the wired network security and mobile communication security	C5	D
2	2.The security issues and threats of network	C4	D
3	3.The security knowledge of the network and its application	P6	D
4	4.Security protocols of network	P6	D
5	5.Students may regularly take notice of new mechanisms of network security.	P4	D
6	6.Enhancing students' ability to read technical English especially in the realm of network security.	C3	D

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	1.The difference between the wired network security and mobile communication security	Lecture, Discussion	Written test, Report, Participation
2	2.The security issues and threats of network	Lecture, Discussion	Written test, Report, Participation
3	3.The security knowledge of the network and its application	Lecture, Discussion	Written test, Report, Participation
4	4.Security protocols of network	Lecture, Discussion	Written test, Report, Participation

5	5.Students may regularly take notice of new mechanisms of network security.	Lecture, Discussion	Written test, Report, Participation
6	6.Enhancing students' ability to read technical English especially in the realm of network security.	Lecture, Discussion	Report, Participation

This course has been designed to cultivate the following essential qualities in TKU students

Essential Qualities of TKU Students	Description
◇ A global perspective	Helping students develop a broader perspective from which to understand international affairs and global development.
◆ Information literacy	Becoming adept at using information technology and learning the proper way to process information.
◇ A vision for the future	Understanding self-growth, social change, and technological development so as to gain the skills necessary to bring about one's future vision.
◇ Moral integrity	Learning how to interact with others, practicing empathy and caring for others, and constructing moral principles with which to solve ethical problems.
◆ Independent thinking	Encouraging students to keenly observe and seek out the source of their problems, and to think logically and critically.
◇ A cheerful attitude and healthy lifestyle	Raising an awareness of the fine balance between one's body and soul and the environment; helping students live a meaningful life.
◇ A spirit of teamwork and dedication	Improving one's ability to communicate and cooperate so as to integrate resources, collaborate with others, and solve problems.
◇ A sense of aesthetic appreciation	Equipping students with the ability to sense and appreciate aesthetic beauty, to express themselves clearly, and to enjoy the creative process.

Course Schedule

Week	Date	Subject/Topics	Note
1	104/09/14 ~ 104/09/20	Introduction to network security	
2	104/09/21 ~ 104/09/27	Introduction to network security	
3	104/09/28 ~ 104/10/04	Number Theory and Finite Field (4.1, 4.2)	
4	104/10/05 ~ 104/10/11	Number Theory and Finite Field(4.3,4.4,4.5)	
5	104/10/12 ~ 104/10/18	Block Cipher Operation (6.1,6.2,6.3,6.4)	
6	104/10/19 ~ 104/10/25	Block Cipher Operation (6.5,6.6,6.7)	
7	104/10/26 ~ 104/11/01	PNG(7.1,7.2)	
8	104/11/02 ~ 104/11/08	More Number Theory(8.1,8.2,8.4)	

9	104/11/09～ 104/11/15	Midterm Exam.	
10	104/11/16～ 104/11/22	Public Key Cryptography(8.5, 9.1)	
11	104/11/23～ 104/11/29	RSA(9.2)	
12	104/11/30～ 104/12/06	Public Key Cryptography(10.1, 10.2)	
13	104/12/07～ 104/12/13	Public Key Cryptography(10.3, 10.4,10.5)	
14	104/12/14～ 104/12/20	Cryptography Hash Function(11.3, 11.4)	
15	104/12/21～ 104/12/27	Message Authentication Codes(12.1,12.2,12.3)	
16	104/12/28～ 105/01/03	Message Authentication Codes(12.4,12.5,12.6,12.7)	
17	105/01/04～ 105/01/10	Digital Signature(13.1,13.2,13.3, 13.4)	
18	105/01/11～ 105/01/17	Final Exam.	

Requirement	YOU HAVE TO ATTEND BOTH THE LECTURES AND DO THE READING EVERY WEEK.
Teaching Facility	Computer, Projector
Textbook(s)	William Stallings, Cryptography and Network Security, Sixth edition, Prentice-Hall, 2014.
Reference(s)	
Number of Assignment(s)	(Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 20.0 % ◆ Mark of Usual： % ◆ Midterm Exam： % ◆ Final Exam： % ◆ Other〈quiz 40%;Discussi40%〉：80.0 %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . **※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**