Academic Course Description

SRM University
Faculty of Engineering and Technology
Department of Electronics and Communication Engineering

CS2110 Network Security and Cryptography

Second Semester, 2013-14 (Even semester)

Course (catalog) description: This course provides a way to understand Network Security and different types of Cryptographic techniques. It enables students to have a mix of fundamental concepts together with practical aspects of security.

Compulsory/Elective course: Elective for M. Tech VLSI students

Credit hours: 3 credits

Course coordinator: Mrs. V. Nithya**,** Assistant Professor (Senior Grade), Department of ECE.

Instructor(s)

Name of the instructor	Class handling	Office location	Office phone	Email	Consultation
Mrs. V. Nithya	A	TP12S7	2052	nithya.v@ktr.srmuniv.ac.in	12.30-1.30 pm

Relationship to other courses

Pre-requisites : Nil
Assumed knowledge : Basic knowledge in Computer networks.
Following courses :

References

1. Eric Maiwald, “Fundamentals of Network Security”, Tata McGraw Hill, 2011.

2. Bernard Menezes, "Network Security and Cryptography", Cengage Learning, India Edition, 2010.
3. Behrouz. A. Forouzan, D. Mukhopadhyay, "Cryptography and Network Security", Tata McGraw Hill, Second Edition, 2010.
4. Pallapa Venkataram, "Wireless and Mobile Network Security", Tata McGraw Hill, 2010.
5. Terry Parode, Gordor Synder, "Network Security", Cengage Learning, India Edition, 2008.
6. William Stallings, " Cryptography and Network Security", Pearson Education 4th Edition, 2010.

Class schedule: Four 50 minutes Lecture sessions per week, for 12 weeks

Section	Schedule	
A&B	Day 1	1st Hour
	Day 2	5th Hour
	Day 5	3rd and 4th Hours

Professional component

General	-	0%
Basic Sciences	-	0%
Engineering sciences & Technical arts	-	0%
Professional subject	-	100%

Broad area: Communication | Signal Processing | Electronics | VLSI | Embedded

Test Schedule - Theory

S. No.	Test	Portions	Duration
1	Cycle Test	Hours 1 to 16	1 hr 40 min
2	Model Exam	Hours 17 to 45	3 hrs

Course objectives

- To study the importance of Firewalls and their types.
- To study cryptographic algorithms.
- To study cryptographic protocols.
- To study wireless security.
- To study RFID and E-Passport.

Weekly teaching plan

Hours	Content	Reference Books
1	RFID Basics	2
2	Applications, Security issues	2
3-4	Generation 2 tags	2
5-6	Addressing RFID privacy Concerns	2
7-8	Electronic Passports	2
9-10	Authentication, Confidentiality and Integrity	2
11-13	GSM Security	2
14-16	UMTS Security	2
17	Introduction to Firewalls	1
18-20	Types of Firewalls	1
21	Intrusion detection	1
22-24	Types of intrusion detection	1
25-26	Setup and Manage intrusion prevention	**1**
27	Information Security- History	**1**
28-29	Security as a process, Not point products	1
30	Access attacks, Modification attacks	1
31	Denial of service attacks, Repudiation attacks	1
32	IP Spoofing	1
33	Malicious code	1
34	Information security services- Confidentiality	6
35	Integrity	6
36	Availability	**6**
37	Accountability	6
38	Secret key encryption	6
39	DES	6

40	AES	6
41-42	Number theory- prime numbers, modular arithmetic, Euclid's algorithm	6
43	Fermet's and Euler's theorem, Discrete logarithm	6
44	Public key encryption – Diffie Hellman key exchange	6
45	Elliptic curve cryptography	6

Evaluation methods

Cycle Test	-	20%
Model Test	-	20%
Surprise Test	-	5%
Assignment	-	5%
Final exam	-	50%

Prepared by: Mrs. V. Nithya, Assistant Professor (Senior Grade), Department of ECE

Dated: 20th December 2013 **Revision No.:** 00 **Date of revision:** NA