

COURSE INFORMATION					
Course Title	Code	Semester	L+P Hour	Credits	ECTS
COMPUTER SECURITY	CSE539		3 + 0	3	7

Prerequisites	
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Language of Instruction	English
Course Level	Master's Degree
Course Type	
Course Coordinator	
Instructors	Assist.Prof. Onur Demir
Assistants	
Goals	The aim of this course is to provide students with knowledge in basics computer security concepts on the network security part mostly, principles for providing security, tools, platforms and applications that provide security.
Content	CSE 539 is a course on network and computer security. Topics covered include the following: Security Concepts and Terminology – Threats, Challenges, Cryptology Cryptanalysis, Single Key and Public Key Systems, Hash Algorithms, Network Security ,Applications, Authentication, Email, IP and Web Security Applications, Network Attack Types, Denial of Service Attacks and Defenses, System Security – Intruders, IDSs, Malicious Software, and Firewalls, Operating System Security Concepts.

Course Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
1) Adequate knowledge in confidentiality, integrity and authentication.	3	1,2	A,C
2) Adequate knowledge in single key and public key encryption, authentication mechanisms.	3	1,2	A,C
3) Adequate knowledge in security platforms, tools and applications such as Kerberos, PGP, IPSEC.	3,5	1,2	A,C
4)Adequate knowledge in network security issues, attacks, solutions.	3,5	1,2	A,C
5) Ability to analyze scientific publications.	4	4	D

Teaching Methods:	1: Lecture, 2: Question-Answer, 3: Lab, 4: Case-study
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Assessment Methods:	A: Testing, B: Experiment, C: Homework, D: Project
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COURSE CONTENT		
Week	Topics	Study Materials
1	BASICS - SECURITY PRINCIPLES, ATTACKS, SERVICES	Textbook
2	CRYPTOLOGY – GOALS, HISTORY, CRYPTANALYSIS	Textbook
3	SINGLE KEY ENCRYPTION	Textbook
4	PUBLIC KEY ENCRYPTION, HASHING	Textbook
5	AUTHENTICATION	Textbook
6	KERBEROS	Textbook
7	MIDTERM EXAM I	Textbook
8	IPSEC	Textbook
9	NETWORK SECURITY CONCEPTS, DOS ATTACKS	Textbook
10	INTRUSION DETECTION	Textbook
11	VIRUSES	Textbook
12	FIREWALLS	Textbook
13	MIDTERM EXAM II	Textbook
14	PRESENTATIONS	Textbook

RECOMMENDED SOURCES	
Textbook	Lecture Notes: http://cse.yeditepe.edu.tr/v2/en/academic/course-pages
Additional Resources	Cryptography and Network Security Principles and Practices, 4th edition W. Stallings, ISBN 0-13-187316-4

MATERIAL SHARING	
Documents	
Assignments	
Exams	

ASSESSMENT		
IN-TERM STUDIES	NUMBER	PERCENTAGE

Mid-terms	2	60
Assignment	5	20
Presentation	1	20
Total		100
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		40
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE		60
Total		100

COURSE CATEGORY	Expertise/Field Courses
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COURSE'S CONTRIBUTION TO PROGRAM						
No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1	Knowledge in the advanced computer architecture field					
2	Knowledge in advanced system design for computer engineering					
3	Knowledge in the theoretical topics of computer science					X
4	Ability to comprehend, analyse and critique academic publications and conduct scholarly research at the frontiers of computer engineering		X			
5	Ability and knowledge in the fields of Next-Generation and contemporary computer networks		X			

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION			
Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Excluding the exam weeks: 12x Total course hours)	9	4	36
Hours for off-the-classroom study (Pre-study, practice)	14	4	56
Midterm examination	2	2	4
Presentation	1	20	20
Homework	5	8	40
Final examination	1	2	2
Total Work Load			158
Total Work Load / 25 (h)			6,32

ECTS Credit of the Course			7
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