

COURSE PROFILE

Course Name	Code	Semester	Term	Theory+PS+Lab (hour/week)	Local Credits	ECTS
Network Security	IT527	Fall		3 + 0 + 0	3	8

Prerequisites	None
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Course Language	English
Course Type	Departmental Elective
Course Lecturer	Assoc. Prof. Dr. Vedat Coskun
Course Assistant	Kerem Ok
Course Objectives	This course aims to give IT people the awareness of security threats and the techniques for developing secure applications and hence increasing security of the computer network system.
Course Learning Outcomes	After successfully completing the course, the student must: <ul style="list-style-type: none"> • Have knowledge about vulnerabilities of computing systems. • Have knowledge on the tools for securing the system. • Be able to enhance system security by using appropriate tools.
Course Content	Security attacks, services, and mechanisms. Brief overview of conventional and public-key cryptography. Network security applications, authentication, electronic mail, IP and Web security. System security issues, network management security, intrusion detection, prevention, and firewalls.

COURSE CONTENT

Week	Subjects	Related
1	Introduction to Network Security	Chapter 1
2	Introduction to Cryptography & Secret-key Cryptography	Chapter 2
3	Block Ciphers	Chapter 3
4	AES and Contemporary Block Ciphers	Chapters 5
5	Number Theory	Chapter 8
6	Public-Key Cryptography	Chapter 9
7	Authentication	Chapter 15
8	Digital Signatures and Authentication Protocols	Chapter 13
9	Authentication Applications	Chapter 22
10	E-mail Security	Chapter 18
11	IP Security	Chapter 19
12	Web Security	Chapter 16
13	Intruders, Intrusion Detection, Malicious Software	
14	Firewalls	

Course Textbook	Cryptography and Network Security 3rd Edition William Stallings
Recommended References	

Semester Requirements	Number	Percentage of Grade
Attendance/Participation		
Laboratory		
Application		
Special Course Internship (Work Placement)		
Quizzes/Studio Critics		
Homework Assignments		
Presentation		
Project		
Seminar/Workshop		
Midterms/Oral Exams	1	40
Final/Resit Exam	1	60
Total		100

PERCENTAGE OF SEMESTER WORK	1	40
PERCENTAGE OF FINAL WORK	1	60
Total		100

Course Category	Core Courses	
	Major Area Courses	X
	Supportive Courses	
	Media and Management Skills Courses	
	Transferable Skill Courses	

COURSE'S CONTRIBUTION TO PROGRAM

#	Program Qualifications / Outcomes	* Level of Contribution				
		1	2	3	4	5
1	An ability to use the theoretical and applied foundations in mathematics and basic sciences acquired in the undergraduate level to the solutions of problems in information technology area					X
2	An ability to analyze a graduate level problem, identify and define the computing requirements appropriate to its solution, to understand, select and use appropriate technology, tools, standards, protocols, building blocks, and components to solve the problem		X			
3	An ability to propose, analyze, design, develop, test and maintain an information technology system including software solutions, security model, computer and network infrastructure, information systems etc. to solve graduate level information technology problems		X			
4	An ability to analyze and communicate local and global impact of computing on individuals, organizations and society; and the ability to apply information technology techniques, skills, and tools for regular computing practices as well as to improve effectiveness of current methodologies		X			
5	An ability to effectively communicate in oral and written media with all kinds of related audiences, prepare documentation for this purpose; and acquire academic writing skills in a foreign language			X		
6	An ability to understand and teach professional, ethical, legal, and social issues and responsibilities of information technology profession and research				X	
7	An ability to gain knowledge and conduct research on topics inside and outside the requirements of the information technology profession, and the ability to lead and work within heterogeneous teams of people from different research areas to accomplish interdisciplinary research				X	
8	An ability to engage in life-long learning and professional development for personal improvement to follow contemporary information technology research			X		

*1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Number	Duration (Hours)	Total Workload
Course Hours (Including Exams)	14	3	42
Tutorials			
Laboratory			
Application			
Special Course Internship (Work Placement)			
Field Work			
Study Hours Out of Class	14	5	70
Presentations / Seminar			
Project			
Preparatory reading	14	6	84
Homework Assignments			
Quizzes			
Midterm Exams	1	2	2
Final / Resit Exam	1	2	2
		Total Workload	200

COURSE CATEGORY

ISCED GENERAL AREA CODES	GENERAL AREAS	ISCED BASIC AREA CODES	BASIC EDUCATIONAL AREAS	
1	Education	14	Teacher Training and Educational Sciences	
2	Humanities and Art	21	Art	
2	Humanities and Art	22	Humanities	
3	Social Sciences, Management and Law	31	Social and Behavioural Sciences	
3	Social Sciences, Management and Law	32	Journalism and Informatics	
3	Social Sciences, Management and Law	38	Law	
4	Science	42	Life Sciences	
4	Science	44	Natural Sciences	
4	Science	46	Mathematics and Statistics	
4	Science	48	Computer	60
5	Engineering, Manufacturing and Civil	52	Engineering	40
5	Engineering, Manufacturing and Civil	54	Manufacturing and Processing	
5	Engineering, Manufacturing and Civil	58	Architecture and Structure	
6	Agriculture	62	Agriculture, Forestry, Livestock, Fishery	
6	Agriculture	64	Veterinary	
7	Medicine and Welfare	72	Medical	
7	Medicine and Welfare	76	Social Services	
8	Service	81	Personal Services	
8	Service	84	Transport Services	
8	Service	85	Environment Protection	
8	Service	86	Security Services	