COURSE PROFILE

Course Name	Code	Semester	Term	Theory+PS+Lab (hour/week)	Local Credits	ECTS
Computer Networking Applications	IT506	Spring	2	3 + 0 + 0	3	8

Prerequisites	None

Course Language	English
Course Type	Departmental Elective
Course Lecturer	Assist. Prof. Dr. Cüneyt Sevgi
Course Assistant	
Course Objectives	The student completing this course will gain: • A basic understanding of networks using TCP/IP. • An understanding of the design considerations in building network applications. • An in depth knowledge of Berkley sockets and the system calls needed to support network programming. • A greater understanding of WIN32 and/or UNIX programming. E.g. Multi-threaded coding.
Course Learning Outcomes	At the end of this course students will be able to : • understand the functional layering of network software architectures • write their own socket-based network application programs • gain experience with using software tools for network troubleshooting
Course Content	The design and implementation of network applications will be presented in this course. TCP/IP using Berkley Sockets will provide the network interface. In addition, network protocols and many advanced topics in WIN32 and/or UNIX programming will be presented. Time permitting, there will be an introduction to the .NET Sockets class and .NET remoting will be presented.

COURSE CONTENT

Week	Subjects	Related
1	Discussion of the course objectives and introduction.	
2	WIN32 and/or UNIX system calls used to support network programming. These may include the system calls to support multi-threading, access control, signal processing, multiplexing, and inter-process communications.	
3	WIN32 and/or UNIX system calls used to support network programming. These may include the system calls to support multi-threading, access control, signal processing, multiplexing, and inter-process communications.	
4	WIN32 and/or UNIX system calls used to support network programming. These may include the system calls to support multi-threading, access control, signal processing, multiplexing, and inter-process communications.	
5	Introduction to networks. This is a general introduction to underlying hardware, network topologies, and protocols	
6	Introduction to networks. This is a general introduction to underlying hardware, network topologies, and protocols	
7	Design considerations in creating network applications	
8	Design considerations in creating network applications	
9	The socket interface. The system calls to support TCP and UDP connections will be presented.	
10	The socket interface. The system calls to support TCP and UDP connections will be presented.	
11	The implementation of client and server software will be presented using a set of graduated examples. Issues such as concurrency, machine independence, and applications protocol will be addressed.	
12	The implementation of client and server software will be presented using a set of graduated examples. Issues such as concurrency, machine independence, and applications protocol will be addressed.	
13	Broadcast applications. The issues in building a reliable broadcast will be presented.	
14	Development of a set of classes to support communications interfaces.	

Course Textbook	Internetworking with TCP/IP Volume III, second edition (WINSOCK Version), Comers and Stevens.
Recommended References	

Semester Requirements	Number	Percentage of Grade
Attendance/Participation		
Laboratory		
Application		
Special Course Internship (Work Placement)		
Quizzes/Studio Critics	3	24
Homework Assignments		
Presentation	1	6
Project	1	30
Seminar/Workshop		
Midterms/Oral Exams/Review		
Final/Resit Exam	1	40
Total		100

PERCENTAGE OF SEMESTER WORK		60
PERCENTAGE OF FINAL WORK		40
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	10	2	20
Laboratory			
Application	7	2	14
Special Course Internship (Work Placement)			
Field Work	5	3	15
Study Hours Out of Class	14	3	42
Presentations / Seminar	2	4	8
Project	7	5	35
Preparatory reading	14	2	28
Homework Assignments			
Quizzes	3	2	6
Midterm Exams			
Final / Resit Exam	1	3	3
		Total Workload	213

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	50
5	Engineering, Manufacturing and Civil	52	Engineering	50
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	