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Course Profile - Department of Information Technologies

Course Number : **IT 407**	Course Title : Fundamentals of Computer Networks
Required / Elective : Required	Pre / Co-requisites : Consent of Instructor
Catalog Description: Overview of computer networks: Network architecture and the ISO model. Network topology: Routing and congestion, satellite and packet radio networks, local networks. Transmission and session layer, presentation layer, application layer.	Textbook / Required Material : **No obligatory text book – Any textbook on computer and data communications will be appropriate**
Course Structure / Schedule : **(3+0+0) 3 / 7 ECTS**	
Extended Description : This course examines the fundamental concepts and principles, protocols and standards, design, implementation, and performance of computer networks, with stress on the Internet, including wired and wireless communication. A focus will be placed on TCP protocol suite, its layers, services, and outcomes. Topics include: Internet protocols and routing, local area networks, wireless communications and networking, TCP, network address translation, switching and routing, peer-to-peer networking, network security, and other current research topics**.**	
Design content : **None**	Computer usage: **None**

Course Outcomes: [relevant program outcomes in brackets]:

1. Master the basics, principles, and protocols of data communication [6]
2. Master the needs, benefits, terminology and concepts of the networking, TCP/IP reference model, its layers, protocols, services and interfaces [7]
3. Understand how data packets are created, sliced, secured, and transferred among the sender and the receiver computers [7]
4. Understand the roles, technical details, and design criterias of all networking devices such as repeaters, hubs, switches, and routers [7]
5. Master the IP addressing schema based on IPv4 and the latest version, how they are generated, allocated to computers, translated to internal adresses [3]
6. Analyze the need for a case, and design network solutions by selecting the most approptiate devices and addressing schema [3,4,5,8]

Program Outcomes for Management Information Systems Program:

1. A foundation in mathematics and basic sciences and ability to apply acquired knowledge as they relate to the study and practice of information systems management.
2. An ability to align information technology, organizational and strategic matters.
3. An ability to propose, analyze, design, develop, test and maintain an information technology system including software solutions, security model, computer and network infrastructure, etc. to solve information systems problems.
4. An ability to analyze local and global impact of computing on individuals, organizations and society; and the ability to apply information systems techniques, skills, and tools for regular computing practices as well as to improve effectiveness of current methodologies.
5. An ability to effectively communicate in oral and written media with all kinds of related audiences; and prepare documentation for this purpose as required.
6. An understanding of professional, ethical, legal, and social issues and responsibilities of information systems management profession.
7. A taste and breadth of knowledge across several social topics outside the immediate requirements of the information systems management profession, and the ability to work within heterogeneous teams to accomplish a common goal including people from the information systems area as well as other disciplines.
8. An ability to engage in life-long learning and professional development for personal improvement to follow contemporary information systems issues.

Teaching methods

Students will learn the theory by pre-readings and attending affectively to the classes.

Assessment methods

1st Midterm exam	20%
2nd Midterm exams	20%
Project	20%
Final exam	40%

Student workload:

Preparatory reading	**78 hrs**
Lectures, workshop, discussions	**42 hrs**
Project	**50 hrs**
Final Exam	**5 hrs**
TOTAL	**175 hrs**

Prepared by : **Dr. Vedat COŞKUN**	Revision Date : **08 February 2010**