Course unit title:	**Network Application Programming**				
Course unit code:	ACSC424				
Type of course unit:	Elective				
Level of course unit:	Bachelor (1st Cycle)				
Year of study:	4				
Semester when the unit is delivered:	7(Fall)				
Number of ECTS credits allocated:	5	Lectures:	1	Labs:	2
Name of lecturer(s):	Dr. Efthyvoulos Kyriacou				
Aim of the Course	Teach students TCP/IP network programming				
Learning outcomes of the course unit:	Upon successful completion of the course students will be able to: • Understand network protocols in general, OSI and TCP/IP reference models • Understand TCP/IP naming, addressing etc. Use sockets TCP and UDP programming models (client server) • Understand the main web server protocol HTTP and communicate with a web server, Understand Send Mail (SMTP), POP3 and FTP protocols, Understand DNS and commands for monitoring of network • Understand several issues for network Security • Get an idea of the next generation of Internet and IPv6				
Mode of delivery:	Face-to-face				
Prerequisites:	ACSC223	Co-requisites:	None		
Course contents:	• **Introduction to networks:** Overview of Network Programming. The OSI and TCP/IP reference models. Data Link and Application Layers Protocols. Sockets. Ports. Streams. • **TCP/IP:** Understand TCP/IP naming, addressing etc. Use sockets TCP and UDP programming models (client server) • **Web protocols, mail, naming, network monitoring:** Understand the main web server protocol HTTP and communicate with a web server. Send Mail Transfer Protocol (SMTP). POP3 protocol. FTP protocol. DNS and commands for monitoring a network • **Secure a network and setup a network:** Firewalls. Proxy servers. Routers • **Next generation of Internet and IPv6:** An introduction to IPv6 and the next generation of internet • **Laboratory Work:** o Windows and .NET environment o Programming in .NET using C# o Understanding network programming				

	○ Using SDKs etc. ○ Working with sockets ○ Create TCP/IP client server program ○ Working with sockets ○ Create UDP client server program ○ HTTP protocol and communicating with web servers ○ SMTP and POP3 protocols, communicating with email servers ○ FTP communicating with file servers ○ Network security, building a network, firewalls, proxy servers routers ○ Ping, DNS, network monitoring, packets analysis
Recommended and/or required reading:	
Textbooks:	1. Fiach Reid, Network Programming in .NET with C# and Visual Basic .NET, Elsevier Digital Press, 2004, ISBN – 13: 978-1-55558-315-6
References:	1. MSDN network (Windows developer center) http://msdn.microsoft.com/en-us/library/ms817952.aspx 2. www.sockets.com 3. Winsock 2 Overview and Pointers, http://www.sockets.com/winsock2.htm
Planned learning activities and teaching methods:	The course is mainly delivered through lectures an practical lab sessions that illustrate the core concepts. Practical sessions are held in computer laboratories where Windows Environment and Microsoft Visual c# are being used and programming exercises are given to gain practical skills and to implement the theoretical concepts taught.
Assessment methods and criteria:	• Labs and Assignment: 30% • Tests: 20% • Exam: 50%
Language of instruction:	English
Work placement(s):	No