IT 263 Applied Networks and Security

James deBettencourt
Summer I 2012-2013
Class number: 41313
Section number: 201
TuTh 1:30PM - 4:45PM
CDM 00202 Loop Campus
Course homepage: http://d2l.depaul.edu

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Summary

This course introduces the networking and security technologies required to build and maintain a small local area network based on wired/wireless and cloud technology. Networking topics will include client/server application software configuration, network connectivity (cabling, switch and router configuration), basic IP addressing, network address translation and options for public Internet access services. Security topics will include typical threats and responses, firewalls, host hardening, password management and virtual private clouds (VPCs) and networks (VPNs). The course has a lab component where students apply wired/wireless and cloud technologies to design and administer a small network with various applications.

Texts

Recommended: The Internet Book: Everything You Need to Know About Computer Networking and How the Internet Works (4th Edition) (Paperback) by Douglas E Comer Publisher: Prentice Hall; 4 edition (August 29, 2006) ISBN-10: 0132335530 / ISBN-13: 978-0132335539

Text available in the bookstore and online either new or used, sometimes it is also available as a rental, and possibly as a limited duration electronic edition.

Additional readings will be provided throughout the quarter, along with links to online information and resources. Content will be available through the course management system, D2L.

Grading

Required coursework components and their contribution to the final grade will be: a) homework assignments or activities (20%), b) writing/lab reports/assignments or activities (30%), c) midterm exam/project/activity (15%), d) final exam and/or project/presentation (20%), and e) attendance and participation (15%). These components/contributions may be revised during the course of the quarter; any changes will be discussed in the class.

Schedule of Topics and Readings (Preliminary; Subject to Change) - Summer 1-1213

Class 1 – June 18
Course Introduction, Networking and Internet Basics (Ch. 1-11), and The Cloud
AAA: Authentication, Authorization, Auditing/Accounting
Remote Access Concepts

Class 2 – June 20
Network Components; Clients and Servers
IP addressing, Private Networks, DHCP (Ch. 12-17, 23-24)
Web Services vs. Web Hosting

Class 3 – June 25
LANs, WANs, NAT, and DNS (Ch. 18-19)
Subnetting, CIDR
Cloud Web Server

Class 4 – June 27
Network switching and routing (Ch. 20)
VPCs, VPNs and Internet Applications (Ch. 21)
VPC – Single Subnet

Class 5 – July 2
Ethernet and Wi-Fi, Packet Sniffing; TLS/SSL
Packet Analysis: HTTP/HTTPS; ARP

Class 6 – July 4
Holiday – No Class

Class 7 – July 9
VPC/LAN Design and Implementation: Web Application Hosting VPC LAN
Final Project Requirements; VPC – Two Subnets

Class 8 – July 11
Network Security Services: Confidentiality, Integrity, Authentication, Access Control. (Ch. 31, 33)
Host Hardening; User Account Control
System Health: Updating, Malware/Virus Protection

Class 9 – July 16
Host-based and Network-based Firewalls (Ch. 32)
VPC/LAN Routing and Security Rules
Wireless Security and Network Analysis

Class 10 – July 18
Final Project Review & Presentations

Additional Requirements

Many of the class activities and projects have been designed around implementations using public cloud technology. Students will be requested to create a personal account with Amazon Web Services, where a free usage tier is available for new accounts. Information will be supplied during class on creating, using, maintaining such accounts, and individually the students will have the financial responsibility for these accounts. Efforts will also be made to provide some additional usage credits for students, but may not always be available.

School policies:

Online Teaching Evaluation

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Students complete the evaluation online in CampusConnect.

Email

Email is the primary means of communication between faculty and students enrolled in this course outside of class time. Students should be sure their email listed under "demographic information" atCampusConnect is correct.

Academic Integrity Policy

This course will be subject to the academic integrity policy passed by faculty. More information can be found at http://academicintegrity.depaul.edu/

Plagiarism

The university and school policy on plagiarism can be summarized as follows: Students in this course should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work any assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor.

Incomplete

An incomplete grade is given only for an exceptional reason such as a death in the family, a serious illness, etc. Any such reason must be documented. Any incomplete request must be made at least two weeks before the final, and approved by the Dean of the College of Computing and Digital Media. Any consequences resulting from a poor grade for the course will not be considered as valid reasons for such a request.

Resources for Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.
To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at:
Student Center, LPC, Suite #370
Phone number: (773)325.1677
Fax: (773)325.3720
TTY: (773)325.7296