



Course Technology Infrastructure: Network Operating Systems (2014-2015)

Code / Version INFO2060 (100)

Total Hours 45

Credits 3

PreRequisite(s) INFO1030 (100) Technology Infra: Networking an UNIX
or INFO1030 (101) Technology Infrastructure: Networking

CoRequisite(s)

Course Description

In this course, students will learn how to administer network operating systems such as Windows Server and Linux. They will create user accounts, assign users to groups and control access to server-based files and folders. They will also configure server-based services such as web servers, database servers, DHCP, and DNS.

PLAR Eligible: Yes

Course Outcomes

Successful completion of this course will enable the student to:

1. Manage users and groups in Linux and in Windows' Active Directory. Use access rights to permit or deny them access to files, folders and services.
 2. Construct the directory objects and folder/file structures required to support a business unit on a network and control access to these by user or group.
 3. Use policies and scripts to facilitate or restrict what users are permitted to do in a Windows environment.
 4. Create, configure and delegate DNS zones in Windows and Linux to resolve URLs into IP addresses.
 5. Configure web services on Windows and Linux to support multiple sites and to designate the user(s) that have update rights to each site.
 6. Configure a relational database management system in Windows and Linux.
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Unit Outcomes

Successful completion of the following units will enable the student to:

1.0 Servers & Server Functions

- 1.1 Describe common server functions such as file, print, mail, routing, proxy, web, directory, database, firewall, transaction, etc.
- 1.2 Describe how server clustering works.
- 1.3 Differentiate a host and a client operating system in a virtual machine configuration.
- 1.4 In a cloud environment, describe when the infrastructure might be using clustering and when it might be using virtual machines.
- 1.5 Explain the file security concepts of rights, attributes, and inheritance.
- 1.6 Differentiate between client/server and peer-to-peer networking.
- 1.7 Describe the benefits and limitations of RAID levels 0, 1, 3, 5 and 10.

2.0 Windows Server & Active Directory

- 2.1 Define features of Windows Server such as the Active Directory (AD), distributed file shares, dynamic vs. basic disk volumes, mounting drives, clustering, etc.
 - 2.2 Differentiate between share rights and NTFS rights.
 - 2.3 Describe the Domain, Tree, Forest, Site and Organisational Unit structure of AD and the concepts of context, objects, and properties.
 - 2.4 Use the MMC (Microsoft Management Console) and snap-ins to manage the server and AD.
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- 2.5 Create users on AD and the groups or organisational units that will be used to manage their access rights.
 - 2.6 Apply Group Policy Objects to control folder redirection and access to applications and system features (such as the control panel or display).
 - 2.7 Build login scripts and apply them to users or groups of users using Group Policy Objects.
 - 2.8 Structure files and directories on a volume, and manage group access rights to them through NTFS rights and AD groups.
 - 3.0 DNS – Domain Name Services
 - 3.1 Describe how FQDNs (aka URLs) are resolved into IP addresses.
 - 3.2 Define what forward and reverse lookup zones are used for, and what a start-of-authority is.
 - 3.3 Describe how recursion is used to resolve DNS requests.
 - 3.4 Configure a DNS server to support a sub-domain.
 - 4.0 IIS – Internet Information Server (Web Services)
 - 4.1 Configure multiple sites on a web server and set the user/group rights to restrict who can update each site.
 - 4.2 Use virtual directories to enable web sites to share remote folders and files as if they were physically on the site's root folder.
 - 5.0 SQL Server
 - 5.1 Create databases on SQL Server and use user/group rights to denote who is allowed to access the database, update the tables and modify the table structures.
 - 5.2 Transfer tables, their schemas and data from Access to SQL Server and from one instance of SQL Server to another.
 - 6.0 Linux: User & Group Administration
 - 6.1 Describe how users and groups are defined and related through UID and GID in a Linux environment.
 - 6.2 Create the groups that will be used to manage user access rights.
 - 6.3 Create users and give them exclusive rights to their home directories.
 - 6.4 Structure files and directories on a volume, and manage user access rights to them through groups.
 - 6.5 Grant limited root privileges to users using "sudo".
 - 7.0 DNS on Linux
 - 7.1 Configure a DNS service on a Linux server
 - 8.0 Apache: Web Service on Linux
 - 8.1 Configure multiple sites on a web server and set the user/group rights to restrict who can update each site.
 - 9.0 MySQL
 - 9.1 Install and configure MySQL on a Linux machine.
 - 9.2 Add a database and table to MySQL, control user access to the tables.
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Required Student Resources

Optional Student Resources

Evaluation

The minimum passing grade for this course is 55 (D).

In order to successfully complete this course, the student is required to meet the following evaluation criteria:

Exercises (8@5%)	40.00
Mid-Term Exam	30.00



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Final Exam	30.00
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	100.00 %

Other

Conestoga College is committed to providing academic accommodations for students with documented disabilities. Please contact the Accessibility Services Office.

Prepared By David Turton

School Information Technology

Date 2015-01-12

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