

Networking and Communications 12

District Name: Mission
District Number: 75
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School Name: Mission Secondary
Principal's Name: Randy Huth
Board/Authority Approval Date: January 15, 2004

Board/Authority Signature:

Course Name: Networking and Communications
Grade Level of Course: 12
Number of Course Credits: 4
Number of Hours of Instruction: 120

Prerequisite(s): Networking & Communications 11 Students also require the Internet Access Permission form to be filled out.

Special Training: Instructor must have basic knowledge of computers including using a networked lab, and specific knowledge of the configuration and administration of networks, specifically the Novell system.

Facilities of Equipment Required: Computer lab (preferably networked and PC format) design software such as Front Page, a separate machine powerful enough to host a Network Operating System (presently Novell) demo version, and a link for that machine to the network.

Course Synopsis:

This course has been developed to give students a more advanced understanding of how networks work. It covers the Internet, web design languages and tools, and specific operating systems with an in-depth study of Novell networks and how to create users and give them access to the various parts of the network.

Rationale:

While personal pages and sites can be designed using very basic language, commercial/business sites must be far more advanced to survive. Advanced languages and use of software for design becomes essential. In addition to web design, network administration is a valuable skill and for those who were introduced to it in the previous course, this will take it one step further.

Organizational Structure

Unit	Title	Time
Unit 1	Internet Design	25 hours
Unit 2	Web Languages and Software	40 hours
Unit 3	Network Engineering	15 hours
Unit 4	Administration Tasks	40 hours
	Total Hours	120 hours

Unit Descriptions

Unit 1: Internet Design

Time: 25 hours

Students will learn more advanced design concepts and evaluate sites for their effectiveness.

Curriculum Organizer

It is expected that students will:

- be able to recognize what is and is not effective in advanced web site design
- be able to use effective meta tags and other components that improve visibility on search engines
- demonstrate an understanding of the value of various advanced tools for data collection, secure payment, restricting access, etc.
- demonstrate an understanding of terminology

Unit 2: Web Language and Software

Time: 40 hours

Students will learn advanced web languages and be able to write using the code. They will also utilize web design software to a greater extent and be able to add to or alter the code produced by the software. Rather than just inserting code for special features, they will learn to program them.

Curriculum Organizer

It is expected that students will:

- be able to program beyond HTML using advanced languages
- be able to use tools such as style sheets to define consistently throughout the site
- demonstrate an understanding of improving search engine visibility
- be able to effectively use a variety of techniques to expand visibility
- be able to use design software effectively without completely relying on it
- demonstrate an understanding of terminology

Unit 3: Network Engineering

Time: 15 hours

Students will expand on what they learned in the previous course.

Curriculum Organizer

It is expected that students will:

- demonstrate an understanding of terminology
- be able to identify various protocol options
- demonstrate an understanding of hubs, switches, routers, etc. and their various uses
- be able to plan a small network
- demonstrate an understanding of various cabling options
- be able to identify wiring including proper pairing and an understanding of industry standards such as IEEE 802.3
- demonstrate an understanding of dynamic IP addressing

Unit 4: Administrative Tasks

Time: 40 hours

This will expand on the tasks from the previous course and include more advanced functions such as login scripting, actually designing and installing the server, etc. This will still be done on a separate server that is specifically for learning.

Curriculum Organizer

It is expected that students will:

- be able to design and install a basic server
- be able to define suitable parameters for that server
- be able to create and name volumes

- be able to assess what optional components will be required
- be able to take access a server remotely
- be able to create login commands for users including mapping various drives
- be able to access audit files to monitor use
- be able to dynamically assign IP addresses
- be able to perform routine maintenance as well as troubleshoot potential problems in the server
- demonstrate an understanding of terminology

Instructional Components

- direct instruction
- self-paced study and tutorials in the languages (W3 schools recommended)
- hands-on use of the learning server
- complete supervisory access to the learning server
- use of NOS documentation online
- Internet research of various hardware
- projector demonstrations for all units
- accessing web sites for evaluation
- Internet research of various hosting companies
- group work and brainstorming for network engineering and administration

Assessment Components

Weight %	Category	Details
15	Quizzes	Section quizzes will be given to ensure understanding prior to the next topic.
20	Unit Exams	Unit exams will be multiple choice and short answer covering basic theory and functions.
35	Projects	Projects illustrating the students' ability in advanced web design, wiring the network and setting up/maintaining the server..
10	Attendance/Effort	In addition to achievement and comprehension, students can earn marks based on regular attendance and acceptable levels of effort.
20	Final Exam	The exam will be primarily multiple choice and short answer and will cover the theory from all of the units.

Learning Resources

- Windows Computers (preferably networked)
- A NOS (at present Novell) on a learning server dedicated to that task and separate from the school server with separate passwords, etc to ensure security
- A web design program (presently Front Page)
- Internet (research and tutorials)
- Online support documentation for the NOS

Additional Course Information

Presumably, the students taking this senior course will have a genuine interest in working in-depth with computers and/or the Internet and/or networks. It is an extremely challenging course, but for those with the interest in these fields, the skills will prove invaluable.

There is no textbook for this course per se. With the rapid pace at which computers are changing, it is futile to use print materials. With a networked lab, which also has access to the Internet, there are more up-to-date materials

accessible. The Internet also contains a wealth of resources for specific versions. The proper software and hardware, a learning server with a NOS, the instructor's knowledge, a projector to illustrate examples, and the vast resources of the Internet should be more than adequate materials.