

52.1204 Business Systems Networking (LAN/WAN) and Telecommunications

This cluster offers a sequence of planned educational classroom and laboratory experiences designed to prepare individuals to support the operation and administration of a computer network. It will prepare individuals to design, install, configure, and monitor an organization's local area network (LAN), wide area network (WAN), and Internet access. Students will learn to manage user access and security, maintain, troubleshoot, and secure network hardware and software, and acquire, maintain, and manage software licenses. At the same time it will prepare individuals to work with end-users and provide Helpdesk support.

This cluster includes a sequence of planned educational classroom and laboratory experiences which will develop competencies in the following duty areas:

<i>Planning, designing and implementing LANs and WAN connections</i>	<i>Planning, designing and implementing internet connectivity</i>
<i>Installing, configuring and updating network hardware and software</i>	<i>Designing and managing network security systems</i>
<i>Creating and managing user accounts, rights, and access</i>	<i>Providing and prioritizing Helpdesk service to end-users</i>
<i>Designing, configuring, monitoring, and troubleshooting automated backup systems</i>	<i>Managing and maintaining software licenses</i>
<i>Monitoring network performance</i>	

Employment opportunities which are available to workers with competencies in the Business Systems Networking (LAN/WAN) and Telecommunications Cluster include banking institutions, manufacturing companies, educational institutions, government offices, insurance companies, retail and wholesale companies, accounting firms, hotel-motel firms, real estate firms, savings and loan institutions, medical offices, legal offices, transportation firms, advertising companies, and computer firms. Through entrepreneurship, other employment opportunities are also available.

The following are examples of occupations for which instruction may be provided at the secondary level.

Help Desk Support
PC Support Specialist

The following occupational listing shows examples of occupations that may require additional training in a specialized program at the postsecondary level.

Network Administrator
 Network Technician
 Network Specialist
 Systems Administrator
 Network Engineer
 Data Communication Analyst

In addition to those occupations already noted, there are other occupations of a professional nature requiring extensive education beyond that received at secondary and postsecondary levels.

A regional delivery system should offer training for occupations in this field as determined by employment opportunities and the needs of the students.

Training received in this program is used as a basis for entry level into the labor market and for further training at the postsecondary level. Worksite learning experiences are encouraged to provide experiences that cannot be duplicated in the classroom. Articulation between the secondary and postsecondary programs will be a part of the regional delivery system.

Workplace skills, as well as 1) skills used in work performance that are transferable across jobs and occupations and that are instrumental to job and classroom success, 2) skills used to manage life's transitions, and 3) skills employed in the resolution of interpersonal, information or task-related problems or problems related to behavior in cooperative group settings, should be included in this curriculum. Leadership skill development is an integral part of this program and is delivered through career and technical student organization activities (e.g. Future Business Leaders of America (FBLA) and Business Professionals of America (BPA)). Individualized instruction and learning reinforcement are provided through cooperative career and technical education programs, as well as classroom instruction. Communication skills (thinking, listening, composing, revising, editing, and speaking) will be integrated throughout the course.

Industry Certifications - Regional systems are encouraged to provide opportunities for students to acquire the skills and knowledge needed to meet the industry certifications associated with this program. It is recommended that the related industry certification content be integrated within the core content at the preparation level.

COURSE SEQUENCE

<u>Course Title</u>	<u>Credits per Semester</u>	<u>Length in Semesters</u>	<u>Grade Level</u>
<u>Orientation</u>			
Business and Technology Concepts	.5	2	9, 10
Keyboarding and Formatting I	.5	1	9, 10
Computer Concepts and Software Applications	.5	1	9, 10

Preparation

Computer Networking I	.5	2	11
Computer Networking II	.5	2	12
Cooperative Office Education	*variable	2	12

* As determined at the regional system level.

BUSINESS SYSTEMS NETWORKING (LAN/WAN) AND TELECOMMUNICATIONS SUGGESTED COURSE DESCRIPTIONS

BUSINESS AND TECHNOLOGY CONCEPTS

Length of course: 2 Semesters
Credits per semester: .5
Grade level: 9, 10

This orientation-level course will provide an overview of all aspects of business marketing and management, including the concepts, functions, and skills required for meeting the challenges of operating a business in a global economy. Topics covered will include the various forms of business ownership, including entrepreneurship, as well as the basic functional areas of business (finance, management, marketing, administration and production).

Students will be introduced to a wide range of careers in fields such as accounting, financial services, information technology, marketing, and management. Emphasis will be placed on using the computer while studying applications in these careers along with communication skills (thinking, listening, composing, revising, editing, and speaking), math and problem solving. Business ethics as well as other workplace skills will be taught and integrated within this course.

This course is not intended to meet the consumer education requirement, but rather to provide preparation for the skill level courses that make up the Business, Marketing and Management occupations programs.

KEYBOARDING AND FORMATTING I

Length of course: 1 Semester
Credits per semester: .5
Grade level: 9, 10

Keyboarding and Formatting I is a course designed to develop basic skills in touch keyboarding techniques for entering alphabetic, numeric, and symbol information found on computers and terminals. Students will learn to edit and format text and paragraphs, change fonts, work with headers and footers, cut and paste text, create and use tab keys, create labels, and work with multiple windows. Students will format documents such as letters, envelopes, memorandums, reports, and tables for personal, educational, and business uses. During the second half of the course, major emphasis is placed on formatting documents, improving proofreading skills, and increasing speed and accuracy.

COMPUTER CONCEPTS AND SOFTWARE APPLICATIONS

Length of course: 1 Semester
Credits per semester: .5
Grade level: 9, 10

Computer Concepts and Software Applications is an orientation-level course designed to develop awareness and understanding of application software and equipment used by employees to perform tasks in business, marketing and management. Students will apply problem-solving skills to hands-on, real-life situations using a variety of software applications, such as word processing, spreadsheets, database management, presentation software, and desktop publishing. Students will explore topics related to computer concepts, operating systems, telecommunications and emerging technologies. The development of employability skills, as well as transition skills, will be included in the course as well as an understanding of the ethical considerations that arise in using information processing equipment and gaining access to available databases.

COMPUTER NETWORKING I

Length of course: 2 Semesters
Credits per semester .5
Grade level: 11

Computer Networking I is a skill-level course designed to provide students with the skills needed to setup, configure, test, troubleshoot, maintain, and administer a data network using various network operating systems such as Novell, Windows, and Linux. Instruction will include network planning decisions, such as choosing an appropriate network configuration, determining the performance level requirements considering the differences among operating systems, and recommending network interface cards and cabling. Students will also learn how to setup and manage file systems and resources, and network topologies, protocols, and system utilities to efficiently run software applications on a network. Students will learn to use basic operating system commands, install and configure networks, set up user accounts and rights, and establish user security and permissions.

COMPUTER NETWORKING II

Length of course:	2 Semesters
Credits per semester	.5
Grade level:	12

Computer Networking II is a skill-level course for students who have completed Computer Networking I. Students will continue to learn skills to set up, configure, test, troubleshoot, maintain, and administer a data network using various network operating systems such as Novell, Windows, and Linux. Students will learn to use troubleshooting services, system monitoring utilities, and data backup and recovery systems. Instruction will include setting up and configuring various network services such as TCP/IP, DHCP, DNS, VPN, terminal services, e-mail, content filtering, and web services. Students will learn techniques to secure and protect network servers and data. Students will be introduced to some basic concepts regarding web server configuration. Students will also learn to use standard software tools to determine system vulnerabilities and correct these vulnerabilities by reconfiguring the operating system. Students will diagnose network problems using public domain network sniffers such as Ethereal. Instruction will include setting up and configuring a firewall, intrusion detection system, and encryption software for identifying and preventing potential network attacks.

COOPERATIVE OFFICE EDUCATION

Length of course:	2 Semester
Credits per semester	Variable
Grade level:	12

Cooperative Office Education is a capstone course designed to assist students in the development of effective business skills and attitudes through practical, advanced instruction in school and on the job through cooperative education. Approximately half the school day is spent taking classes at school and the other half in on-the-job training supervised by the designated training sponsor and coordinated by the teacher-coordinator. The related class at school is planned to develop skills and attitudes that are applied on the job. A training plan is developed jointly by the teacher-coordinator, training sponsor and student that identifies training to be provided. Training in the related class at school focuses upon the student's career and technical education, with additional assignments based upon areas where on-the-job performance indicates a need. Related instruction also includes workplace skills such as seeking and applying for employment, communicating on the job, maintaining professionalism, workplace ethics, etc.

Current generation equipment is utilized in this course to develop information management competencies required for employment in this cluster of careers. Instruction involves the use of simulations and computer-assisted instruction, as well as specific application software for database management, accounting, word processing, financial modeling, business graphics and communications between information processing systems.

