

WEB DESIGN II

**Internet Business Foundations
Networking Technology Foundations**

Curriculum Content Frameworks

**Please note: All assessment questions will be
taken from the knowledge portion of these
frameworks.**

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Curriculum Content Frameworks

WEB DESIGN II

Internet Business Foundations
Networking Technology Foundations

Grade Levels: 10, 11, 12
Course Code: 492660

Prerequisite: CBA or CA I, II
OR
Teacher Recommendation

Course Description: Web Page Design II – Internet Business Foundations, Networking Technology Foundations is the second level of Web Page Design concentration, and it prepares students with work-related skills for advancement into postsecondary education or industry. Course content includes exposure to basic and advanced Web design, pixelated and vector-based Web graphics, Web animations, dynamics of Web hosting, and Web design in eCommerce. The course content provides students the opportunity to acquire fundamental skills in both theory and practical application of Web design and of leadership and interpersonal skill development. Laboratory facilities and experiences simulate those found in the Web page design and Web page construction industry. Further, this course provides for and directly maps to the Certified Internet Webmaster “Site Designer” national certification examination.

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Internet Business Foundations Unit 1: Information Technology and the Internet

Hours: 4

Terminology: .aero, .biz, .com, .coop, .edu, .gov, .info, .int, .mil, .museum, .name, .net, .org, .pro, 56 Kbps, Ad-hoc, Advanced Research Projects Agency (RPA), ARPANET, Backbone, Bandwidth, Cable modem, Channel, Client, Client software, Computer, Database administrator, Dead link, Digital Subscriber Line (DSL), Domain name server, Domain Name System (DNS), E1 line, E3 line, Fiber-optic cable, File Transfer Protocol (FTP), Fully Qualified Domain Name (FQDN), Gateway, Help desk technician, Hexadecimal, Host, Hypertext link, Hypertext Transfer Protocol (HTTP), Information Technology (IT), Infrastructure, Integrated Services Digital Network (ISDN), Internet, Internet address, Internet connection, Internet Message Access Protocol (IMAP), Internet Service Provider (ISP), Kbps, Local Area Networks (LANs), Mbps, Modem, National Science Foundation (NSF), Network, Network engineer, Network Interface Card (NIC), Network News Transfer Protocol (NNTP), Newsgroup, Node, Operating System, Packet, PC repair technician, Point-to-Point Protocol (PPP), Point-to-Point over Ethernet (PPPoE), Post Office Protocol (POP), Root-level server, Router, Security analyst/consultant, Security manager, Server, Server administrator, Shared domain, Simple Mail Transfer Protocol (SMTP), Standard, T1 line, T3 line, Top-level domain, Transmission Control Protocol/Internet Protocol (TCP/IP), Usenet (User Network), Virtual domain, Web application developer, Web architect, Web browser, Web page, Web site, Web site analyst, Web site designer, Web site manager, Wide Area Networks (WANs), Wireless Access Point (WAP), World Wide Web (WWW), xDSL modem

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | | |
|---|---|---------------------------------------|---|---|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | Skill Group | Skill | Description | |
| 1.1 Define terminology | 1.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to information technology and the Internet [1.3.6] | |
| 1.2 Identify job roles in the IT industry, including the responsibilities, tasks and skills they require | 1.2.1 Examine individual job roles within the IT industry and the IT profession as a whole | Personal Management | Career Awareness, Development, and Mobility | Comprehends ideas and concepts related to IT professions [3.1.3] | |
| 1.3 Identify the infrastructure required to access the Internet, including hardware and software components | 1.3.1 Compare and contrast the client and a server | Foundation | Writing | Analyzes data, summarizes results, and makes conclusions [1.6.2] | |
| | 1.3.2 Explain Internet history and define current protocols, including: IPv4, IPv6, and related protocols | Thinking | Decision Making | Evaluates information/data to make best decision [4.2.5] | |
| | 1.3.3 Classify hardware and software connection devices and their uses, including: various types of modems such as analog, ISDN/ADSL, and cable | | Reasoning | Comprehends ideas and concepts related to the infrastructure required to access the Internet [4.5.2] Sees relationship between two or more ideas, objects, or situations [4.5.5] | |

| CAREER and TECHNICAL SKILLS What the Student Should be Able to Do | | ACADEMIC and WORKPLACE SKILLS What the Instruction Should Reinforce | | |
|--|--|--|-----------------|--|
| Knowledge | Application | Skill Group | Skill | Description |
| 1.4 Define important Internet communications protocols and their roles in delivering basic Internet services | 1.4.1 Explain the purpose of remote access protocols, including: Point-to-Point, Point-to-Point Protocol over Ethernet | Foundation | Writing | Analyzes data, summarizes results, and makes conclusions [1.6.2] |
| | 1.4.2 Relate various types of Internet bandwidth technologies (link types), including: T and E carriers, fractional T and E lines, command DSL/ADSL and cable speeds | Thinking | Reasoning | Determines which conclusions are correct when given a set of facts and a set of conclusions [4.5.3] Sees relationship between two or more ideas, objects, or situations [4.5.5] |
| | 1.4.3 Map protocols to specific business services (e.g., SMTP, IMP, and POP# to e-mail; HTTP and HTTPS to Web browsers; FTP to file transfer: NNTP to news servers) | | | |
| 1.5 Identify the basic principles of the Domain Name System (DNS) | 1.5.1 Explain the purpose and structure of the Domain Name System (DNS) | Foundation | Listening | Listens for content [1.2.3] |
| | 1.5.2 Classify Internet domain names, including: top-level or original domains (edu, com, net, gov, org), country-level domains (uk, ch, tv) and newer domains (biz, info) | Thinking | Decision Making | Evaluates information/data to make best decision [4.2.5] |

Internet Business Foundations Unit 2: Web Browsing

Hours: 4

Terminology: Absolute URL, Authentication, Browser cache, Challenge Handshake Authentication Protocol (CHAP), Cookie, Decryption, Deep URL, Encryption, Extranet, Home page, Intranet, Lynx, Microsoft Challenge Handshake Authentication Protocol (MS-CHAP), Mozilla, Password Authentication Protocol (PAP), Pop-under Window, Pop-up Window, Proxy server, Relative URL, Secure Sockets Layer (SSL), Transport Layer Security (TLS), Uniform Resource Identifier (URI), Uniform Resource Locator (URL), Webinar, Wizard

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | | |
|--|--|---------------------------------------|----------------------|---|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | Skill Group | Skill | Description | |
| 2.1 Define terminology | 2.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to Web browsing [1.3.6] | |
| 2.2 Identify the functions of Web browsers, and use them to access the World Wide Web and other computer resources | 2.2.1 Analyze a URL/URI, its functions and components, and the different types of URLs (relative and absolute) | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] | |
| | 2.2.2 Navigate between and within Web sites and use multiple browser windows | | Writing | Presents answers/conclusions in a clear and understandable form [1.6.13] Uses technical words and symbols [1.6.20] | |
| | 2.2.3 Differentiate between pop-up and pop-under windows | Thinking | Decision Making | Evaluates information/data to make best decision [4.2.5] | |
| | 2.2.4 Illustrate the function of Secure Sockets Layer, Transport Layer Security, and other encryption methods in securing communication for various protocols (e.g., FTP/FTPS, HTTP/HTTPS, IMP/IMPS, POP3/POP3S) | | Knowing How to Learn | Uses available resources to apply new skills [4.3.6] | |
| | 2.2.5 Relate the following from a business standpoint: intranet, extranet, Internet, webinar | | Reasoning | Applies rules and principles to a new situation [4.5.1] Uses logic to draw conclusions from available information [4.5.6] | |
| | 2.2.6 Configure common browser preferences, including: fonts, home pages, Bookmarks/Favorites, history, browser, cache, image loading, security settings | | | | |
| | 2.2.7 Discover the concept of caching and its implications, including: client caching, cleaning out client-side cache, Web page update settings in browsers | | | | |

Internet Business Foundations Unit 3: Multimedia on the Web

Hours: 4

Terminology: .au, .doc, .eps, .gif, .jpg, .mov, .mp3, .ogg, .ps, .ra, .ram, .rtf, .swf, .tif, .txt, .wav, .wma, .wmv, ActiveX, Applets, Audio Interchange File Format (AIFF), Audio Video Interleave (AVI), Codec, Disk cache, Dynamic, Event-driven, Flash, Graphical User Interface (GUI), Interactive, Java, JavaScript, LiveScript, Lossless compression, Lossy compression, Macromedia Shockwave, Moving Picture Experts Group (MPEG), Musical Instrument Digital Interface (MIDI), Object, Object-oriented programming (OOP), Plug-in, Portable Document Format (PDF), QuickTime, RealNetworks RealPlayer, Streaming media, Vector graphics, Viewer, Virtual Reality Modeling Language (VRML), Visual Basic, Visual Basic Script (VBScript)

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | | |
|--|--|---------------------------------------|---------|--|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | Skill Group | Skill | Description | |
| 3.1 Define terminology | 3.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to multimedia on the Web [1.3.6] | |
| 3.2 Identify file formats | 3.2.1 Illustrate document and multimedia file formats, including PDF, RTF, PostScript | Foundation | Reading | Analyzes and applies what has been read to specific task [1.3.2] | |
| 3.3 Identify plug-ins and their file name extensions | 3.3.1 Examine common plug-ins, add-ons, and viewers (e.g., Adobe Acrobat, Macromedia Flash and Shockwave, RealNetworks RealPlayer, Windows Media Player, Apple QuickTime) and identify their common file name extensions | Foundation | Writing | Analyzes data, summarizes results, and makes conclusions [1.6.2] | |

Internet Business Foundations Unit 4: Database and Web Search Engines

Hours: 4

Terminology: " "; AltaVista; AND, &; Boolean operator; Common Field; Common Gateway Interface (CGI); Database; Database Management System (DBMS); Directory search; Field; Foreign key; Google; Index; Junction table; Keyword; Keyword search; Many-to-many relationship; Meta search engine; NOT, !; One-to-many relationship; One-to-one relationship; Open Database Connectivity (ODBC); OR, |; Primary key; Query; Record; Relational database; Relationship; Search engine; Structured Query Language (SQL); Table; Yahoo!

| CAREER and TECHNICAL SKILLS | | | ACADEMIC and WORKPLACE SKILLS | | |
|---|-------------|---|---------------------------------------|----------------------|--|
| What the Student Should be Able to Do | | | What the Instruction Should Reinforce | | |
| Knowledge | Application | | Skill Group | Skill | Description |
| 4.1 Define terminology | 4.1.1 | Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to database and Web search engines [1.3.6] |
| 4.2 Use different types of Web search engines effectively | 4.2.1 | Conduct searches using Boolean operators and keywords | Foundation | Listening | Comprehends ideas and concepts related to Web search engines [1.2.1] |
| | 4.2.2 | Distinguish among search engines and information portals | | Reading | Determines what information is needed [1.3.10] |
| | 4.2.3 | Illustrate unexpected Web search results | | Writing | Presents answers/conclusions in a clear and understandable form [1.6.13] |
| | 4.2.4 | Explain the meta search engines and spiders ranking techniques | Thinking | Knowing How to Learn | Applies new knowledge and skills to Web search engines [4.3.1] |
| | 4.2.5 | Evaluate Internet resources and verify factuality | | | |
| 4.3 Recognize essential database concepts | 4.3.1 | Distinguish between relational and non-relation database | Foundation | Reading | Analyzes and applies what has been read to specific task [1.3.2] |
| | 4.3.2 | Examine common relational database concepts, including: table, row, record, column, field, data value, join | Thinking | Writing | Determines what information is needed [1.3.10] |
| | 4.3.3 | Analyze relationships between tables, including: one-to-one, one-to-many, many-to-many | | | Presents answers/conclusions in a clear and understandable form [1.6.13] |
| | 4.3.4 | Explain the purpose of SQL in querying databases | | Decision Making | Evaluates information/data to make best decision [4.2.5] |

Internet Business Foundations Unit 5: E-Mail

Hours: 4

Terminology: Attachment, Blind carbon copy (Bcc), Blackhole list, Browser e-mail, CAPTCHA, Domain name, E-mail autoresponder, E-mail client, E-mail signature, Emoticons, Gnu Privacy Guard (GPG), Header, IP address, Mail Delivery Agent, Mail User Agent (MUA), Message Transfer Agent, Multipurpose Internet Mail Extensions (MIME), Netiquette, Online service e-mail, Outlook Express Configuration, Personal Digital Assistant (PDA), Personal Information Management (PIM) program, Pretty Good Privacy (PGP), Secure MIME (S/MIME), Small-Screen Rendering, Snail mail, Spam, Spam filter, User name, Web-based e-mail, Wireless Application Protocol (WAP), Wireless Markup Language (WML)

| CAREER and TECHNICAL SKILLS | | | ACADEMIC and WORKPLACE SKILLS | | | |
|--|-------------|--|---------------------------------------|----------|---|---|
| What the Student Should be Able to Do | | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | | Skill Group | Skill | Description | |
| 5.1 Define terminology | 5.1.1 | Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to e-mail [1.3.6] | |
| 5.2 Show how to use mail clients to send simple messages and files to other Internet users | 5.2.1 | Configure an e-mail client to send and receive e-mail, including: SMTP, POP3, IMAP, Web-based e-mail support | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] | |
| | 5.2.2 | Compare MIME, S/MIME and PGP/GPG | | Speaking | Applies/Uses technical terms as appropriate to audience [1.5.2] | |
| | 5.2.3 | Examine e-mail components (e.g., signature, blindcopy, attachment, forwarding, reply, automatic reply) | | Writing | Analyzes data, summarizes results, and makes conclusions [1.6.2] | |
| | 5.2.4 | Demonstrate client-side filters to combat SPAM | | Thinking | Knowing How to Learn | Uses available resources to apply new skills [4.3.6] |
| | 5.2.5 | Identify ways that e-mail is used in the workplace (e.g., e-mail thread, e-mail etiquette) | | | Reasoning | Sees relationship between two or more ideas, objects, or situations [4.5.5] |
| | 5.2.6 | Examine ways that wireless devices interface with network devices using physical and network interfaces, and protocols such as Wireless Application Protocol | | | | |

Internet Business Foundations Unit 6: Internet Services and Tools

Hours: 2

Terminology: .asc, .exe, .rar, .sea, .sit, .tar, .zip, Anonymous login, Binary files, Blog, Concurrent Version System (CVS), FileZilla, Freeware, FTP Structure, Gaim, Get, Gnutella, Instant messaging, ipconfig command, Lightweight Directory Access Protocol (LDAP), Microsoft Telnet, Napster, Newsgroup structure, Newsgroup categories, P2P, Peer-to-peer network, *ping ip_address* command, Put, Remote Desktop Connection, Secure Copy (SCP), Secure Shell (SSH), Shareware, Spim, SSH File Transfer Protocol (S/FTP), SSL/TLS-enabled FTP (FTPS), Standard Telnet, Telnet, Telnet connection, *tracert ip_address* command, Usenet, Virtual network Computing (VNC), Windows Remote Assistance

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | | |
|--|---|---------------------------------------|---------------------------------|--|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | Skill Group | Skill | Description | |
| 6.1 Define terminology | 6.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to Internet services and tools [1.3.6] | |
| 6.2 Define additional networking and Internet services | 6.2.1 Relate use and purpose of newsgroups 6.2.2 Relate use and purpose of FTP 6.2.3 Compare and contrast Concurrent Versions System (CVS) and Virtual Network Computing (VNC) 6.2.4 Relate use and purpose of LDAP 6.2.5 Demonstrate how to manage files using common compression software and techniques (e.g., zip/WinZip, gzip, bzip2, RAR, compress) | Foundation Thinking | Speaking Decision Making | Applies/Uses technical terms as appropriate to audience [1.5.2] Comprehends ideas and concepts related to networking and Internet services [4.2.2] Demonstrates decision-making skills [4.2.4] | |

Internet Business Foundations Unit 7: Internet Security

Hours: 4

Terminology: Antivirus software, Asymmetric-key encryption, Authentication, Ciphertext, Copyright, Digital certificates, Digital signature, Encryption, Firewall, Hash, Hash encryption, Illicit servers, Key, List server, Listserve group, Malware, Non-repudiation, Patch, Plaintext, Private key, Public key, RSA Algorithm, Secure Hash Algorithm (SHA), Spyware, Symmetric-key encryption, Trademark, Trojan horse, Update, User names and passwords, Virus, Worm

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | | |
|---|--|---------------------------------------|----------------------|--|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | Skill Group | Skill | Description | |
| 7.1 Define terminology | 7.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to Internet security [1.3.6] | |
| 7.2 Identify security issues related to Internet clients (e.g., Web browsers, e-mail, instant messaging) in the workplace, including: certificates, malware, illicit servers, viruses | 7.2.1 Analyze the three major types of encryption | Foundation | Listening | Listens for content [1.2.3] | |
| | 7.2.2 Compare ways that authentication, digital certificates, encryption and firewalls provide Web security | | Writing | Communicates thoughts, ideas, or facts in written form in a clear, concise manner [1.6.6] Uses technical words and symbols [1.6.20] | |
| | 7.2.3 Compare a computer virus, worm, and spyware and explain how to protect your computer from attacks | Thinking | Knowing How to Learn | Applies new knowledge and skills to security issues [4.3.1] | |
| | 7.2.4 Explain the functions of patches and updates to client software and associated problems, including desktop security, virus protection, encryption levels, Web browsers, e-mail clients | | Reasoning | Extracts rules or principles from written information [4.5.4] Sees relationship between two or more ideas, objects, or situations [4.5.5] | |
| | 7.2.5 Explain security-related ethical and privacy issues faced by IT professionals | | | | |
| | 7.2.6 Relate basic copyright issues | | | | |

Internet Business Foundations Unit 8: IT Project Management

Hours: 4

Terminology: Assignment, Assumption, Closing phase, Constraint, Controlling phase, Customer, Executing phase, Gantt chart, International Organization for Standardization (ISO) 9000 standards, Issues log, Needs analysis, Project, Project Management, Project Management Professional (PMP), Project objective, Project review, Project schedule, Project triangle, Resource, Return on Investment (ROI), Scope, Scope creep, Stakeholder, Statement of Work (SOW), Task

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | | |
|---|---|---------------------------------------|-----------------|--|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | Skill Group | Skill | Description | |
| 8.1 Define terminology | 8.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to IT project management [1.3.6] | |
| 8.2 Relate project management concepts and terms to the IT profession | 8.2.1 Classify the components of the project triangle | Foundation | Writing | Analyzes data, summarizes results, and makes conclusions [1.6.2] | |
| | 8.2.2 Outline the project life cycle and phases | Thinking | Decision Making | Evaluates information/data to make best decision [4.2.5] | |
| | 8.2.3 Relate IT-based concerns to organizational policies and rules, and identify rights and responsibilities of IT workers | | Problem Solving | Draws conclusions from what is read and gives possible solutions [4.4.4] | |
| | 8.2.4 Use the concept of Return on Investment (ROI) to justify IT-based expenses in relation to a budget | | Reasoning | Extracts rules or principles from written information [4.5.4] | |

Networking Technology Foundations Unit 1: Introduction to Networking

Hours: 6

Terminology: Application Service Provider (ASP), Back end, Backbone, Bottleneck, Bridge, Bus topology, Business logic, Client, Coaxial cable (coax), Data, Fiber optic cable, Firewall, Front end, Hub, Hybrid network, Infrared, Internet Service Provider (ISP), Legacy model, Local area network (LAN), MAC address, MAC address filtering, Mainframe, Mesh topology, Network Access Point (NAP), Network basic elements, Network Interface Card (NIC), Network Operating System (NOS), Network Operations Center (NOC), Network topology, Node, Open Systems Interconnection (OSI) reference model, P2P network, Packet, Patch panel, Repeater, Ring topology, Router, Segment, Server, Shielded Twisted Pair (STP), Star topology, Switch, Three-tier model, Twisted-pair cable, Unshielded twisted pair (UTP), Voice over IP (VoIP), Wide Area Network (WAN), Wired Equivalent Privacy (WEP), Wireless Access Point (WAP)

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | |
|---|--|---------------------------------------|-----------------|---|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | |
| Knowledge | Application | Skill Group | Skill | Description |
| 1.1 Define terminology | 1.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to networking [1.3.6] |
| 1.2 Demonstrate knowledge of basic data communications components | 1.2.1 Illustrate basic network topologies (e.g., ring, mesh) | Foundation | Reading | Determines what information is needed [1.3.10] |
| | 1.2.2 Analyze the Open Systems Interconnection reference model (OSI/RM) in terms of packet creation | | Writing | Analyzes data, summarizes results, and makes conclusions [1.6.2] Presents answers/conclusions in a clear and understandable form [1.6.13] |
| | 1.2.3 Explain the nature, purpose and operation essentials of Transmission Control Protocol/Internet Protocol (TCP/IP) | Thinking | Decision Making | Evaluates information/data to make best decision [4.2.5] |
| | 1.2.4 Compare local area network (LAN) and wide area network (WAN) | | Reasoning | Sees relationship between two or more ideas, objects, or situations [4.5.5] |
| | 1.2.5 Classify the core network components and how they relate to each other, including: routers, network access points (NAPs), backbone networks, hub, switch | | | |
| | 1.2.6 Distinguish among common cable types used in networking (e.g., CAT5, CAT6, crossover) | | | |
| | 1.2.7 Compare Ethernet and Token Ring | | | |
| | 1.2.8 Examine common TCP/IP network parameters, including: IP addresses (static versus DHCP), subnet mask, default gateway, DNS information | | | |

| CAREER and TECHNICAL SKILLS | | | ACADEMIC and WORKPLACE SKILLS | | |
|---------------------------------------|---|--|---------------------------------------|--------------|--|
| What the Student Should be Able to Do | | | What the Instruction Should Reinforce | | |
| Knowledge | Application | | Skill Group | Skill | Description |
| 1.3 | Discuss configuring and troubleshooting wireless networks | 1.3.1 Illustrate connecting wireless networks to standard wired LANs 1.3.2 Explain security issues with wireless networks | Foundation | Writing | Analyzes data, summarizes results, and makes conclusions [1.6.2] Presents answers/conclusions in a clear and understandable form [1.6.13] |

Networking Technology Foundations Unit 2: TCP/IP Suite and Internet Addressing

Hours: 6

Terminology: Application layer, Dynamic (private ports), Dynamic Host Configuration Protocol (DHCP), Internet Address Classes, Internet architecture, Internet layer, ipconfig command, Loopback address, Network access layer, Open Shortest Path First (OSPF), Packet Internet Groper (PING) command, Registered range of port numbers, Routing Information Protocol (RIP), Traceroute command, Transport layer, Well-known range of port numbers

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | | |
|---|---|---------------------------------------|----------------------|---|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | Skill Group | Skill | Description | |
| 2.1 Define terminology | 2.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to TCP/IP suite and Internet addressing [1.3.6] | |
| 2.2 Identify the relationship between IP addresses and domain names, including: assignment of IP addresses with in a subnet | 2.2.1 Explain IP addressing and the concept of uniqueness, including IP address, subnet mask | Foundation | Listening | Listens for content [1.2.3] | |
| | 2.2.2 Show how IP address classes are used on the Internet and determine valid IP addresses | | Reading | Uses appropriate materials and techniques as specified [1.3.20] | |
| | 2.2.3 Determine default subnet masks and describe the ANDing process | Thinking | Writing | Analyzes data, summarizes results, and makes conclusions [1.6.2] | |
| | 2.2.4 Examine common TCP/IP network parameters, including: IP addresses (static versus DHCP), subnet mask, default gateway, DNS information | | Reasoning | Determines which conclusions are correct when given a set of facts and a set of conclusions [4.5.3] | |
| | 2.2.5 Explain basic IPv6 concepts | | | | |
| 2.3 Identify common performance issues affecting Internet clients, including: analysis, diagnosis | 2.3.1 Evaluate issues to consider when troubleshooting IP-enabled systems, including: DNS/name resolution, correct default gateway and subnet mask, hosts file configuration, DHCP versus static IP configuration | Thinking | Knowing How to Learn | Locates appropriate learning resources to acquire or improve skills [4.3.3] | |
| | 2.3.2 Select when to use various diagnostic tools for troubleshooting and resolving Internet problems, including: ping, winipcfg, ipconfig, route, arp, traceroute, netstat, network analyzers (packet sniffers) | | Reasoning | Applies rules and principles to a new situation [4.5.1] | |

Networking Technology Foundations Unit 3: Internetworking Servers

Hours: 6

Terminology: Baseline, Buffer, Daemon, Data Source Name (DSN), Keys, Mail server, Mailing list server, Media server, Mirrored server, Multipurpose Internet Mail Extensions (MIME), Newsgroup, Open source, Permissions, Print queue, Proxy server, Structured Query Language (SQL), Usenet, Zone file

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | | |
|--|--|---------------------------------------|--------------------------|--|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | Skill Group | Skill | Description | |
| 3.1 Define terminology | 3.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to Internetworking servers [1.3.6] | |
| 3.2 Identify the functions and components of network servers commonly used on the Internet | 3.2.1 Distinguish between network servers 3.2.2 Relate the functions and features of common Internet-based services, and identify protocols used by each, including: file, print, HTTP, proxy, caching, mail, mailing list, instant messaging, media, DNS, FTP, news, certificate, directory, catalog, fax, transaction, mirrored, UNIX | Foundation Thinking | Reading Reasoning | Analyzes and applies what has been read to a specific task [1.3.2] Extracts rules or principles from written information [4.5.4] | |

Networking Technology Foundations Unit 4: Hardware & Operating System Maintenance

Hours: 6

Terminology: Cluster, Direct Memory Access (DMA), Disk partitioning, I/O address, Interface, Interrupt Request (IRQ), Motherboard, Peripheral ports, Planned maintenance, Power spike, Resource conflict, Root directory, Trace, Virtual Network Computing (VNC)

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | |
|--|---|---------------------------------------|-----------|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | |
| Knowledge | Application | Skill Group | Skill | Description |
| 4.1 Define terminology | 4.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to hardware/operating system maintenance [1.3.6] |
| 4.2 Identify basic hardware and system maintenance for network systems | 4.2.1 Demonstrate connecting common peripherals, including: parallel, serial, USB, FireWire devices (e.g., printers, hard drives, scanners), CD-ROM/DVD | Foundation | Science | Applies knowledge to complete a practical task [1.4.3] |
| | 4.2.2 Compare common file systems (e.g., NTFS, FAT, Ext3, ReiserFS) | Thinking | Reasoning | Comprehends ideas and concepts related to basic hardware and system maintenance for network systems [4.5.2] |
| | 4.2.3 Demonstrate the use of file system management tools, including: convert, Chkdsk, Disk Cleanup, Disk Defragmentor | | | |
| | 4.2.4 Demonstrate file management including: backup, delete, restore | | | |

Networking Technology Foundations Unit 5: Network Security & IT Career Opportunities

Hours: 6

Terminology: Account lockout, Dictionary program, Firewall, IP Security (Ipsec), Packet sniffing, Point-to-Point Tunneling Protocol (PPTP), Replay attack, Smart card, Uninterruptible Power Supply (UPS), Virus, X.509

| CAREER and TECHNICAL SKILLS | | ACADEMIC and WORKPLACE SKILLS | | | |
|---|--|---------------------------------------|---|---|--|
| What the Student Should be Able to Do | | What the Instruction Should Reinforce | | | |
| Knowledge | Application | Skill Group | Skill | Description | |
| 5.1 Define terminology | 5.1.1 Prepare a list of terms with definitions | Foundation | Reading | Applies information and concepts derived from printed materials [1.3.3] Applies/Understands technical words that pertain to network security and IT career opportunities [1.3.6] | |
| 5.2 Identify common Internet security and availability issues | 5.2.1 Analyze network attack types and procedures to counter each attack type | Foundation | Reading | Determines what information is needed [1.3.10] | |
| | 5.2.2 Evaluate benefits and drawbacks of symmetric, asymmetric and hash encryption | Thinking | Writing | Applies rules of grammar, punctuation, capitalization, and spelling [1.6.3] | |
| | 5.2.3 Illustrate Virtual Private Networks (VPNs) and the purposes of remote access protocols, including: Point-to-Point Tunneling Protocol (PPTP), Layer 2 Tunneling Protocol (L2TP) | | Decision Making | Evaluates information/data to make best decision [4.2.5] | |
| | 5.2.4 Distinguish among the following security methods: DMZ, (including dual-homed and triple-homed firewalls), VLAN, intranet, extranet, PKI | | Knowing How to Learn | Locates appropriate learning resources to acquire or improve knowledge and skills [4.3.3] | |
| 5.3 Manage career opportunities in the IT industry | 5.3.1 Demonstrate using Internet technology to obtain employment | Personal Management | Career Awareness, Development, and Mobility | Explores career opportunities [3.1.6] | |

Internet Business Foundations Glossary

Internet Business Foundations Unit 1: Information Technology and the Internet

1. .aero – new domain category for travel industry
2. .biz – new domain category for businesses
3. .com – original top-level domain for commercial or company sites
4. .coop – new domain category for cooperatives
5. .edu – original top-level domain for educational institutions
6. .gov – original top-level domain for U.S. government
7. .info – new domain category for content and research-related sites
8. .int – original top-level domain for international organizations
9. .mil – original top-level domain for U.S. military
10. .museum – new domain category for museums
11. .name – new domain category for personal Web addresses
12. .net – original top-level domain for network sites, including ISPs
13. .org – original top-level domain for organizations
14. .pro – new domain category for professional
15. 56 Kbps – fastest theoretical dial-up speed using analog modem
16. Ad-hoc – wireless mode in which systems use only their NICs to connect with each other
17. Advanced Research Projects Agency (ARPA) – a U.S. Department of Defense agency that created the first global computer network
18. ARPANET – a computer network, funded by ARPA, that served as the basis for early networking research and was the backbone during the development of the Internet
19. Backbone – the highest level in the computer network hierarchy, to which smaller networks typically connect
20. Bandwidth – the amount of information that can be carried on a network at one time; the total capacity of a line

21. Cable modem – speed between 512 Kbps to 52 Mbps
22. Channel – the cable or signal between two network nodes that enables data transmission
23. Client – an individual computer connected to a network; also, a system or application that requests a service from another computer
24. Client software – one of six elements required to connect to the Internet; i.e. Web browser, email program
25. Computer – one of six elements required to connect to the Internet
26. Database administrator – an individual responsible for the maintenance and security of an organization's database resources and data
27. Dead link – a hyperlink that when clicked, sends a Web site visitor to a page or resource that does not exist
28. Digital Subscriber Line (DSL) – a high-speed direct Internet connection that uses all-digital networks
29. Domain name server – a server that resolves domain names into IP addresses
30. Domain Name System (DNS) – a system that maps uniquely hierarchical names to specific Internet addresses
31. E1 line – speed up to 2.048 Mbps. European equivalent of T1
32. E3 line – speed up to 34.368 Mbps. European equivalent of T3
33. Fiber-optic cable – speed up to 100 Gbps
34. File Transfer Protocol (FTP) – an Internet protocol used to transfer files between computers
35. Fully Qualified Domain Name (FQDN) – the complete domain name of an Internet computer
36. Gateway – a node on a network that serves as a portal to other networks
37. Help desk technician – an individual responsible for diagnosing and resolving users' technical hardware and software problems
38. Hexadecimal – a base-16 number system that allows large numbers to be displayed by fewer characters than in a regular base-10 system
39. Host – a computer that other computers can use to gain information; in a network a host is a client or workstation
40. Hypertext link – highlighted or underlined text in a Web page that when clicked; links the user to another location or Web page
41. Hypertext Transfer Protocol (HTTP) – the protocol for transporting HTML documents across the Internet
42. Information Technology (IT) – the management and processing of information using computers and computer networks

43. Infrastructure – wireless mode in which systems connect via a centralized access point, called a Wireless Access Point (WAP)
44. Integrated Services Digital Network (ISDN) – a communication standard for sending voice, video, or data over digital telephone lines
45. Internet – a worldwide network of interconnected networks
46. Internet address – one of the six elements required to connect to the Internet; i.e. Web or email address
47. Internet connection – one of the six elements required to connect to the Internet
48. Internet Message Access Protocol (IMAP) – a protocol that resides on an incoming mail server; similar to POP but more powerful
49. Internet Service Provider (ISP) – an organization that maintains a gateway to the Internet and rents access to customers
50. Kbps – kilobits per second
51. Local Area Networks (LANs) – a group of computers connected within a confined geographic area
52. Mbps – megabits per second
53. Modem – abbreviation for modulator/demodulator; an analog device that enables computers to communicate over telephone lines by translating digital data into audio/analog signals and back again
54. National Science Foundation (NSF) – an independent agency of the U.S. government that promotes the advancement of science and engineering
55. Network – a group of two or more computers connected so they can communicate with one another
56. Network engineer – an individual responsible for managing and maintaining a network's infrastructure
57. Network Interface Card (NIC) – a circuit board within a computer's central processing unit that serves as the interface enabling the computer to connect to a network
58. Network News Transfer Protocol (NNTP) – the Internet protocol used by news servers that enables the exchange of Usenet articles
59. Newsgroup – on Usenet, a subject or other interest group whose members exchange ideas and opinions
60. Node – any entity on a network that can be managed
61. Operating System – one of six elements required to connect to the Internet
62. Packet – data processed by protocols so it can be sent across a network
63. PC repair technician – an individual responsible for installing, modifying, and repairing personal computer hardware components

64. Point-to-Point Protocol (PPP) – a protocol that allows a computer to connect to the Internet over a phone line
65. Point-to-Point Protocol over Ethernet (PPPoE) – a protocol that implements PPP over Ethernet to connect an entire network to the Internet
66. Post Office Protocol (POP) – a protocol that resides on an incoming mail server; current version is POP3
67. Root-level server – a server at the highest level of the Domain Name System
68. Router – a device that routes packets between networks based on network layer address; determines the best path across a network. Also, used to connect separate LANs to form a WAN
69. Security analyst/consultant – an individual responsible for examining an organization's security requirements and determining the necessary infrastructure
70. Security manager – an individual responsible for managing the security measures used to protect electronic data
71. Server – a computer in a network that manages the network resources and provides, or serves, information to clients
72. Server administrator – an individual responsible for managing and maintaining a network's servers
73. Shared domain – a hosting service that allows multiple entities to share portions of the same domain name
74. Simple Mail Transfer Protocol (SMTP) – the Internet standard protocol for transferring e-mail messages from one computer to another
75. Standard – a definition or format that has been approved by a recognized standards organization
76. T1 line – speed up to 1.544 Mbps, commonly used by North American corporate LANs to connect to ISPs
77. T3 line – speed up to 44.736 Mbps, commonly used by North American ISPs to connect to the Internet backbone; extremely fast and one of the most costly types of access
78. Top-level domain – the group into which a domain is categorized by common topic; i.e., edu, com, org
79. Transmission Control Protocol/Internet Protocol (TCP/IP) – a suite of protocols that turns data into blocks of information called packets, which are then sent across the Internet; the standard protocol used by the Internet
80. Usenet (User Network) – a collection of thousands of Internet computers, newsgroups, and members using NNTP to exchange information
81. Virtual domain – a hosting service that allows a company to host its domain name on a third-party ISP server
82. Web application developer – an individual who develops primarily server-side Web applications
83. Web architect – an individual who is responsible for creating the overview plan of a Web site's development
84. Web browser – a software application that enables users to access and view Web pages on the Internet

85. Web page – an HTML document containing one or more elements (text, images, hyperlinks) that can be linked to or from other HTML pages
86. Web site – a World Wide Web server and its content; includes multiple Web pages
87. Web site analyst – an individual who analyzes Web site statistics to determine the site's effectiveness
88. Web site designer – an individual responsible for the organization and appearance of a Web site
89. Web site manager – an individual who manages a Web development team
90. Wide Area Networks (WANs) – a group of computers connected over an expansive geographic area
91. Wireless Access Point (WAP) – a device that enables wireless systems to communicate with each other, provided that they are on the same network
92. World Wide Web (WWW) – a set of software programs that enables users to access resources on the Internet via hypertext documents
93. xDSL modem – speed between 512 Kbps to 32 Mbps

Internet Business Foundations Unit 2: Web Browsing

1. Absolute URL – a URL that gives the full path to a resource
2. Authentication – the process of verifying the identity of a user who logs on to a system, or the integrity of transmitted data
3. Browser cache – a folder on your hard drive that stores downloaded files; improves browser speed by allowing you to view previously accessed Web pages without getting them from the server again
4. Challenge Handshake Authentication Protocol (CHAP) – authenticates by generating a challenge phrase; more secure than PAP
5. Cookie – a text file that contains information sent between a server and a client to help maintain state and track user activities
6. Decryption – the process of converting encrypted data back to its original
7. Deep URL – a URL that includes a path past the domain into the folder structure of a Web site
8. Encryption – a security technique to prevent access to information by converting it to a scrambled form of text
9. Extranet – a network that connects enterprise intranets to the global Internet; designed to provide access to selected external users
10. Home page – the first Web page that displays when you access a domain
11. Intranet – an internal network based on TCP/IP protocols, accessible only to users within a company
12. Lynx – alternative browser, a text-only browser that runs on UNIX and Windows
13. Microsoft Challenge Handshake Authentication Protocol (MS-CHAP) – proprietary version of CHAP
14. Mozilla – alternative browser, open-source version of Netscape
15. Password Authentication Protocol (PAP) – used to authenticate dial-up sessions for remote users
16. Pop-under Window – a small browser window that appears behind the browser window you are currently viewing
17. Pop-up Window – a small browser window that appears in front of the browser window you are currently viewing
18. Proxy server – replaces the IP address with another, this effectively hides the actual IP address from the Internet protecting the entire network
19. Relative URL – a URL that gives an abbreviated path to a resource using the current page as a starting position
20. Secure Sockets Layer (SSL) – a protocol that provides authentication and encryption, used by most servers for secure exchanges over the Internet
21. Transport Layer Security (TLS) – a secure protocol based on SSL 3.0 that provides encryption and authentication

22. Uniform Resource Identifier (URI) – a standardized method of referring to a resource
23. Uniform Resource Locator (URL) – a text string that specifies an Internet address and the method by which the address can be accessed
24. Webinar – an interactive Web-based seminar or training session
25. Wizard – a tool that assists users of an application

Internet Business Foundations Unit 3: Multimedia on the Web

1. .au – audio format used by UNIX servers
2. .doc – Word or WordPerfect files
3. .eps - Encapsulated PostScript used to import and export graphic files between operating systems
4. .gif – Graphics Interchange Format, bitmap format that uses lossless compression
5. .jpg – Joint Photographic Experts Group, format used for photos, uses lossy compression
6. .mov – standard file format for Apple QuickTime
7. .mp3 – MPEG-1 Audio Layer-3
8. .ogg – Ogg Vorbis, a free alternative to MP3
9. .ps – PostScript files are designed for printing on PostScript printers
10. .ra – RealAudio audio file format
11. .ram – RealMedia video file format
12. .rtf – Rich Text Format developed by Microsoft, nearly universal format
13. .swf – flash file format
14. .tif – Tagged Image File Format, customizable graphic format used for medical imaging and desktop publishing
15. .txt – a plain (ASCII) text file
16. .wav – Waveform, the native sound format for Windows
17. .wma – Windows Media Audio file format
18. .wmv – Windows Media Video file format
19. ActiveX – an open set of technologies for integrating components on the Internet and within Microsoft applications; Microsoft's response to Java
20. Applets – small programs written in Java, which are downloaded as needed and executed within a Web page or browser
21. Audio Interchange File Format (AIFF) – high quality audio format developed by Apple

22. Audio Video Interleave (AVI) – standard windows file format for video files
23. Codec – a compression/decompression algorithm used by modern video and audio player plug-ins
24. Disk cache – storage space on a computer hard disk used to temporarily store downloaded data
25. Dynamic – always changing
26. Event-driven – reacting to particular user actions or the browser's completion of a specific task
27. Flash – player and authoring software allows playing movies and creating vector graphics animation
28. Graphical User Interface (GUI) – a program that provides visual navigation with menus and screen icons, and performs automated functions when users click command buttons
29. Interactive – the characteristic of some hardware and software, such as computers, games, and multimedia systems, that allows them to respond differently based on a user's actions
30. Java – an object-oriented programming language developed by Sun Microsystems that is fully cross-platform functional
31. JavaScript – an interpreted object-based scripting language developed by Netscape that adds interactivity to Web pages
32. LiveScript – the Netscape-developed scripting language that was the predecessor to JavaScript
33. Lossless compression – a type of data file compression in which all original data can be recovered when the file is decompressed
34. Lossy compression – a type of data file compression in which some file information is permanently eliminated
35. Macromedia Shockwave – group of multimedia players introduced in 1995, delivers animation, sound, graphics, and streaming video
36. Moving Picture Experts Group (MPEG) – high quality video file compression format
37. Musical Instrument Digital Interface (MIDI) – a standard computer interface used for creating and playing electronic music; allows computers to re-create music in digital format for playback
38. Object – an element on a Web page that contains data and procedures for how that item will react when reactivated
39. Object-oriented programming (OOP) – programming concept based on objects and data and how they relate to one another, instead of logic and actions; C++ and Java are OOP languages
40. Plug-in – a program installed in the browser to extend its basic functionality; allows different file formats to be viewed as part of a standard HTML document
41. Portable Document Format (PDF) – a file format that can be transferred across platforms and retain its formatting; .pdf file format

42. QuickTime – a plug-in developed by Apple Computer for storing movie and audio files in digital format
43. RealNetworks RealPlayer – developed streaming media format in 1995
44. Streaming media – a continuous flow of data, usually audio or video files, that assists with the uninterrupted delivery of those files into a browser
45. Vector graphics – resizable images that are saved as a sequence of vector statements, which describes a series of points to be connected
46. Viewer – a scaled down version of an application designed to view and print files
47. Virtual Reality Modeling Language (VRML) – a three-dimensional graphic authoring language
48. Visual Basic – the Microsoft Graphical User Interface (GUI) programming language used for developing Windows applications; a modified version of the BASIC programming language
49. Visual Basic Script (VBScript) - scripting language from Microsoft, derived from Visual Basic; used to manipulate ActiveX scripts

Internet Business Foundations Unit 4: Database and Web Search Engines

1. " " – keywords must appear in phrases in the order specified
2. AltaVista – created in 1995, contains one of the largest Web databases
3. AND, & – results must include both words
4. Boolean operator – a symbol or word used in Internet searches to narrow search results by including or excluding certain words or phrases
5. Common Field – a field contained in two or more database tables that forms a connection between the tables
6. Common Gateway Interface (CGI) – a program that processes data submitted by the user; allows a Web server to pass control to a software application, based on user request
7. Database – a collection of data that can be sorted and searched using search algorithms
8. Database Management System (DBMS) – a program used to store, access and manipulate database information; i.e., Oracle, Access
9. Directory search – the engine displays a list of categories that you can browse; i.e., Yahoo
10. Field – a category of information in a database table
11. Foreign key – a field in a related database table that refers to the primary key in the primary table
12. Google – search engine that ranks relevance of site according to keywords entered, it also ranks relevance based upon number of links pointing to it
13. Index – a catalog of the contents of a database; each entry identifies a unique database record
14. Junction table – a database table containing foreign-key fields that refer to the primary-key fields from the primary tables in a many-to-many relationship
15. Keyword – a word that appears on a Web page and is used by search engines to identify relevant URLs
16. Keyword search – enter one or more keywords and the search engine finds topics by locating keywords in registered Web pages; i.e., AltaVista and Google
17. Many-to-many relationship – in databases, a relationship in which one record in Table A can relate to many matching records in Table B, and vice versa
18. Meta search engine – a search engine that scans Web pages for <meta> tag information
19. NOT, ! – results must exclude the word specified after the operator
20. One-to-many relationship – in databases, a relationship in which a record in Table A can have multiple matching records in Table B, but a record in Table B has only one matching record in Table A

21. One-to-one relationship – in databases, a relationship in which each record in Table A can have only one matching record in Table B, and vice versa
22. Open Database Connectivity (ODBC) – standard created by The Open Group provides standard database interface
23. OR, | – results must include at least one of the words
24. Primary key – a field containing a value that uniquely identifies each record in a database table
25. Query – a question posed by a user to a database to request database information.
26. Record – a collection of information in a database table consisting of one or more related fields about a specific entity
27. Relational database – a database that contains multiple tables related through common fields
28. Relationship – a connection between two or more database tables that is based on a field that the tables have in common
29. Search Engine – a powerful software program that searches Internet databases for user-specified information
30. Structured Query Language (SQL) – a language used to create and maintain professional, high-performance corporate databases; standard for accessing and updating information in a database
31. Table – a collection of data about a limited topic, organized into rows and columns in a database
32. Yahoo! – one of the oldest and most basic search engines, created in 1994

Internet Business Foundations Unit 5: E-Mail

1. Attachment – a file that is sent with an e-mail message
2. Blind carbon copy (Bcc) – e-mail address of recipient, those in To: and Cc: fields can not see the Bcc recipient's name
3. Blackhole list – a published list of IP addresses known to be sources of spam
4. Browser e-mail – e-mail programs such as Netscape Mail & Outlook Express that come bundled with a Web browser and with which they may be integrated
5. CAPTCHA - Completely Automated Public Turing Test to Tell Computers and Humans Apart
6. Domain name – an IP address represented in words
7. E-mail autoresponder – allows you to configure and send an automated response to e-mail messages that are received while you are away
8. E-mail client – an e-mail program that is independent of any specific Web browser, and that you can use to send e-mail messages
9. E-mail signature – consists of a few lines of text that appear at the bottom of each of your outgoing e-mail messages
10. Emoticons – a combination of characters that you read sideways that help convey emotion in an e-mail message
11. Gnu Privacy Guard (GPG) – an open-source version of PGP, used for encrypting and decrypting e-mail messages
12. Header – a block of information attached to a piece of data; the first part of a network packet
13. IP address – a unique numerical address assigned to a computer or device on a network
14. Mail delivery agent – an e-mail server program that receives sent messages and delivers them to their proper destination mailbox
15. Mail User Agent (MUA) – a messaging component used as a stand-alone application by the user
16. Message transfer agent – a messaging component that routes, delivers, and receives e-mail
17. Multipurpose Internet Mail Extensions (MIME) – a protocol that enables operating systems to map file name extensions to corresponding applications; allows users to exchange various types of data files over the Internet
18. Netiquette – coined to encourage common sense and politeness, and to establish general rules for Internet etiquette
19. Online service e-mail – an e-mail program that is part of an online service's software
20. Outlook express configuration – required for e-mail configuration is e-mail address, outgoing mail server (SMTP) name, incoming mail server (POP3) name, POP3 account name, and POP3 account password

21. Personal Digital Assistant (PDA) – a small, handheld computer used for personal information management
22. Personal Information Management (PIM) program – a tool used to schedule appointments and meetings, store contact information, and manage tasks
23. Pretty Good Privacy (PGP) – a method of encrypting and decrypting e-mail messages
24. Secure MIME (S/MIME) – secure version of MIME that adds encryption to MIME data
25. Small-screen rendering – a browser technology developed for wireless devices that reformats Web pages to display on 176-pixel-wide cell phone screens
26. Snail mail – slang term for the standard postal service
27. Spam – unsolicited and unwanted e-mail messages; the online version of junk mail
28. Spam filter – an e-mail client program that identifies and filters out spam messages before they reach the e-mail inbox
29. User name – a unique name or number that identifies you when logging on to a computer system or online service
30. Web-based e-mail – free e-mail service from a provider such as Hotmail or Yahoo! in which you request a user name
31. Wireless Application Protocol (WAP) – a standard protocol that wireless devices use to access the Internet
32. Wireless Markup Language (WML) – a markup language that presents the text portions of Web pages to wireless devices

Internet Business Foundations Unit 6: Internet Services and Tools

1. .asc – an ASCII text file; a universally accepted standard text format
2. .exe – an executable file
3. .rar – a platform-neutral compression standard
4. .sea – a Macintosh Stuffit self-extracting compressed file
5. .sit – a Macintosh Stuffit compressed file
6. .tar – a UNIX tape archive (tar) file, a form of compression used by UNIX
7. .zip – a WinZip or PKZIP compressed file
8. Anonymous login – FTP client sends user name and password automatically
9. Binary files – a file containing data or instructions written in zeros and ones (computer language) any file format to be transferred
10. Blog – a collection of personal thoughts posted on a public Web site
11. Concurrent Version System (CVS) – development tool/program that allows programmers to control different versions of the pieces of a program as they are being developed
12. FileZilla – a free user-friendly FTP client
13. Freeware – free to download and use
14. FTP Structure – navigating an FTP server is similar to navigating the directory structure of a hard drive
15. Gaim – allows exchange of instant messages across various clients
16. Get – FTP command to download files ie *get filename.ext*
17. Gnutella – same as Napster but server free network
18. Instant messaging – a computer-based method of communication in which users can type and view messages sent to one or more recipients and view the responses immediately
19. *ipconfig* command – Windows XP utility command used to display your system's IP configuration (address)
20. Lightweight Directory Access Protocol (LDAP) – Internet protocol that allows users to locate organizations, people, or other resources on a network

21. Microsoft Telnet – supported by Microsoft only, encrypts authentication sequence and data transmissions
22. Napster – P2P application developed in 1999 by Shawn Fanning; enable users to share music in MP3 format
23. Newsgroup structure – comp.lang.java*
24. Newsgroup categories – biz, comp, news, rec, sci, soc, talk, humanities, misc, alt
25. P2P – a peer-to-peer network on the Internet
26. Peer-to-peer network – a network in which each computer has both server and client capabilities
27. *ping ip_address* command – Windows XP utility command used to ensure connectivity between two systems
28. Put – FTP command to upload files ie *put filename.ext*
29. Remote Desktop Connection – Windows XP use for remote administration, when you establish a remote connection all control of computer is passed to you
30. Secure Copy (SCP) – a program used with Secure Shell (SSH) to securely transfer files between systems
31. Secure Shell (SSH) – a protocol and command interface that provides secure access to a remote computer; SSH commands are encrypted
32. Shareware – download for free and if you like it, pay for it
33. Spim – Spam that is delivered through instant messaging
34. SSH File Transfer Protocol (S/FTP) – a file transfer protocol that allows the encryption of transmissions using SSH; similar to SCP but allows several file transfers per session
35. SSL/TLS-enabled FTP (FTPS) – FTP that runs on an SSL/TLS secured connection
36. Standard Telnet – universal and does not encrypt
37. Telnet – Internet standard protocol for remote terminal connection service
38. Telnet connection – a remote connection you can establish with a server, and then gather information from the computer remotely; i.e., public libraries and government resources
39. *tracert ip_address* command – Windows XP utility command used to display all IP addresses and locate failures
40. Usenet – a public-access network consisting of newsgroups and group mailing lists
41. Virtual network Computing (VNC) – program that allows you to control a computer at a remote location; could use to troubleshoot computer problems remotely
42. Windows Remote Assistance – a service that allows a user to seek assistance from another person in a remote location

Internet Business Foundations Unit 7: Internet Security

1. Antivirus software – software that scans disks and programs for known viruses and eliminates them
2. Asymmetric-key encryption – an encryption method in which two keys (private and public) are used to encrypt and decrypt a message
3. Authentication – process of verifying the identity of a user who logs on or the integrity of transmitted data
4. Ciphertext – encrypted data
5. Copyright – protect original works of authorship that are fixed in a tangible medium; no international copyright exists
6. Digital certificates – a password-protected, encrypted data file that verifies the identity of the sender of a message and provides data integrity; contains requestor's name, serial number, expiration date, copy of public key and digital signature
7. Digital signature – an electronic stamp that identifies its source and verifies its contents
8. Encryption – process of converting data into an unreadable form of text; 128-bit encryption standard is high-level for all types
9. Firewall – a security barrier that prevents unauthorized access to or from private networks; controls flow of information between Internet and private networks
10. Hash – a number generated by an algorithm from a text string
11. Hash encryption – encryption method in which hashes are used to verify the integrity of transmitted messages
12. Illicit servers – an application that installs hidden services on systems, enable attacker to monitor and control computer
13. Key – a variable value, such as a numeric code, that uses an algorithm to encrypt and decrypt data
14. List server – a server that collects and distributes information from an authorized group of participants (listserve group)
15. Listserve group – users who subscribe to an e-mailing list through a list server
16. Malware – software designed to harm computer systems; i.e., malicious software
17. Non-repudiation – the ability to prove that a transaction occurred
18. Patch – a file of programming code that is inserted into an existing executable program to fix a known problem
19. Plaintext – unencrypted data
20. Private key – secret key used by the recipient to decrypt message

21. Public key – encryption key known by all sending and receiving parties (used to encrypt message)
22. RSA Algorithm – developed in 1977 by Ronald Rivest, Adi Shamir, and Leonard Adleman this algorithm evolved into the standard for Internet encryption
23. Secure Hash Algorithm (SHA) – algorithm creates 160-bit hashes; more secure than MD5
24. Spyware – a software application that is secretly placed on a user's system to gather information and relay to outside parties
25. Symmetric-key encryption – encryption method in which the same key is used to encrypt and decrypt a message
26. Trademark – any word, slogan, symbol, name, package design or device that marks and distinguishes a product from other products
27. Trojan horse – a program disguised as a harmless application that contains code that causes harmful results
28. Update – a file or collection of software tools that resolves liabilities and improves software performance
29. User names and passwords – one form of authentication
30. Virus – a malicious program that replicates itself, assumes control of system operations, and damages or destroys data
31. Worm – a self-replicating program or algorithm that consumes system resources; a worm doesn't alter files and so is different from a virus

Internet Business Foundations Unit 8: IT Project Management

1. Assignment – the appointment of a specific resource to a specific task
2. Assumption – a factor that is considered to be real or certain for planning purposes
3. Closing phase – evaluate project schedule, budget, scope, resources, and assignments to determine what worked well and changes that should be made in the future
4. Constraint – a factor, such as budget or time, which limits a project's options (time, resources, scope)
5. Controlling phase – progress is monitored and corrective action is taken as needed (controlled)
6. Customer – the person, department, or company for whom you are performing a project
7. Executing phase – project work is performed (executed)
8. Gantt chart – a horizontal bar chart that graphically displays project tasks and durations
9. International Organization for Standardization (ISO) 9000 standards – outlines a systematic approach to managing business processes so that they consistently deliver quality products
10. Issues log – used to document problems to send to managers
11. Needs analysis – determining a customer's needs by acquiring information, processing and evaluating the information, then creating a plan of action to address the needs
12. Project – a sequence of tasks that must be accomplished within a certain time frame to achieve a desired result; has start date and end date
13. Project Management – the practice of applying skills and processes to activities in order to meet deadlines and achieve desired results
14. Project Management Professional (PMP) – certification program of the Project Management Institute
15. Project objective – should be specific and measurable
16. Project review – provides an opportunity to test the product, evaluate performances, and document lessons learned
17. Project schedule – a document that lists the planned dates for performing tasks and meeting goals defined in a project plan
18. Project triangle – time, money, and scope they affect every project
19. Resource – a person, department, or device needed to accomplish a task
20. Return on Investment (ROI) – profit earned as a result of a project compared to the value of resources required to complete it

21. Scope – the goals and tasks of a project, and the work required to complete them
22. Scope creep – gradual increases in project scope that can undermine the project success
23. Stakeholder – a person/group with an interest in a project and the power to exert influence (either negative or positive) over the project and affect results
24. Statement of Work (SOW) – outlines the requirement for each project task to ensure that objectives are met; should contain clearly defined goals and an agreed-upon plan
25. Task – a unit of work that must be accomplished during the course of a project

Networking Technology Foundations Glossary

Networking Technology Foundations Unit 1: Introduction to Networking

1. Application Service Provider (ASP) – company that provides applications and services over the Internet to subscribers
2. Back end – a series of systems that fulfill request by clients
3. Backbone – a bus trunk used to connect other topologies; highest level in computer network
4. Bottleneck – point in network communications where information is processed more slowly
5. Bridge – reduce network traffic by dividing one network into two segments, they also enable segments to communicate
6. Bus topology – requires all nodes connected to same cable, data is sent to each one and accepted or forwarded to the next
7. Business logic – the coding (SQL) necessary to create relationships in data
8. Client – an individual computer connected to a network (front end)
9. Coaxial cable (coax) – high-capacity cable used for video and communication networks
10. Data – information being stored
11. Fiber optic cable – can accommodate data transmissions much faster than coaxial or twisted pair cable, no electrical signals are carried so no interference and difficult to tap, expensive
12. Firewall – secure computer system placed between a trusted network and an un-trusted one
13. Front end – a client that acts as an interface to a collection of servers
14. Hub – a device used to connect systems (also serves as a repeater or bridge) operate at the physical level
15. Hybrid network – combination of bus, star, and ring topologies, used for expansion
16. Infrared – a spectrum of light used for communication between various network-enabled devices
17. Internet Service Provider (ISP) – organization that maintains a gateway to the Internet for customers on a subscription basis
18. Legacy model – an older model that may not support modern technologies
19. Local area network (LAN) – group of computers connected within a confined geographic area
20. MAC address – unique addresses that are burned on a NIC used to identify a computer on a network

21. MAC address filtering – enables the device to allow only certain MAC addresses to access the network
22. Mainframe – centralized computing provided the first practical network solution
23. Mesh topology – connect devices with multiple paths so that redundancies exist; Internet
24. Network Access Point (NAP) – junction between one high-speed network and another
25. Network basic elements – protocols, transmission media, and network services
26. Network Interface Card (NIC) – a circuit board within a computer's CPU that serves as the interface enabling the computer to connect to a network
27. Network Operating System (NOS) – an operating system that manages network resources; i.e. Microsoft Windows, UNIX/Linux, Novell NetWare
28. Network Operations Center (NOC) – a specific location from which a network is managed, monitored, and maintained
29. Network topology – basic configurations used to wire networks
30. Node – any entity on a network than can be managed (hardware)
31. Open Systems Interconnection (OSI) reference model – a layered network model of communication developed by the ISO
32. P2P network – modern model that supports thousands of simultaneous users who can download and upload files on a worldwide network (Napster introduced)
33. Packet – fixed piece of information sent across a network; three elements are header, data, and trailer
34. Patch panel – central point where cables from different locations are connected to one another (forming a LAN or WAN)
35. Repeater – device that amplifies the electronic signal traveling on a cable segment, operate at the physical level
36. Ring topology – do not have central connection point; a cable connects each node until a ring is formed and data is processed by each node and then passed on
37. Router – a device that routes packets between networks (similar to bridge); operate at the network level
38. Segment – part of a larger structure
39. Server – a computer in a network that manages network resources (back end)
40. Shielded Twisted Pair (STP) – has metal sheath wrapped around wires, protects from external electromagnetic interference, harder to install and maintain
41. Star topology – connect through hub, reduces possibility of entire network failure

42. Switch – a device used to connect either individual systems or multiple networks, operate faster than hubs, bridges, and routers and are replacing those devices
43. Three-tier model – computing model where a Web server contains the business logic, Web browser responsible for presentation, and database server contains the data
44. Twisted-pair cable – most widely used in Ethernet networks, cannot exceed 100 meters, available in Shielded Twisted Pair (STP) and Unshielded Twisted Pair (UTP)
45. Unshielded twisted pair (UTP) – most common type, less expensive, less secure and prone to interference
46. Voice over IP (VoIP) – a technology that transmits voice as packets of data using Internet Protocol, avoids long distance charges
47. Wide Area Network (WAN) – group of computers connected over a large geographic area
48. Wired Equivalent Privacy (WEP) – encryption, considered weak form because it has been cracked, but still recommended
49. Wireless Access Point (WAP) – acts as hub or switch for wireless systems to communicate on the same network

Networking Technology Foundations Unit 2: TCP/IP Suite and Internet Addressing

1. Application layer – users can use applications programs and protocols including Telnet, HTTP, FTP, SMTP, and SNMP
2. Dynamic (private ports) – port numbers between 49152-65535, are not controlled or registered in any way
3. Dynamic Host Configuration Protocol (DHCP) – assigns IP addresses automatically on a TCP/IP network
4. Internet Address Classes – provide structure, by categorizing IP addresses into five classes--A, B, C, D, and E (see Table 2-2)
5. Internet architecture – consists of four layers, each coinciding with layers in OSI (see Table 2-1)
6. Internet layer – protocols used are IP, ICMP, IGMP, ARP, RARP
7. ipconfig command – used to display the Windows IP configuration ie: ipconfig /all
8. Loopback address – loopback address 127 cannot be used as an Internet address, is ideal for testing and troubleshooting
9. Network access layer – consists of operating system device driver, network interface card, and physical connections
10. Open Shortest Path First (OSPF) – chooses shortest (quickest path) factoring in available bandwidth, multiple connections, and security
11. Packet Internet Groper (PING) command – utility tests connectivity between source and destination systems ie: ping ip_address
12. Registered range of port numbers – port numbers between 1024-49151, any process can use them, no permissions are required
13. Routing Information Protocol (RIP) – implemented on small to medium-sized LAN's, maintains only the best, newest route information
14. Traceroute command – utility can determine the path between the source and destination systems ie: traceroute ip_address
15. Transport layer – protocols used are TCP and UDP
16. Well-known range of port numbers – port numbers between 0-1023, also called reserved

Networking Technology Foundations Unit 3: Internetworking Servers

1. Baseline – a recording of network activity
2. Buffer – a cache of memory used by a computer to store frequently used data
3. Daemon – a UNIX program that is usually initiated at startup and runs in the background until required
4. Data Source Name (DSN) – a text string that is used to reference the data source by application systems
5. Keys – a variable value, such as numeric code, that uses an algorithm to encrypt and decrypt data
6. Mail server – stores and/or forwards e-mail messages
7. Mailing list server – a standard STMP server that can automatically forward an e-mail message to every member on a distribution list
8. Media server – offers streaming audio and video over a network
9. Mirrored server – provides data redundancy to protect data on any type of server
10. Multipurpose Internet Mail Extensions (MIME) – protocol that enables operating systems to map file extensions to corresponding applications
11. Newsgroup – on Usenet, a subject or interest group
12. Open source – providing free source code to the development community
13. Permissions – instructions given by an operating system or server that restrict or allow access to system resources
14. Print queue – a mechanism that stores print requests until they are passed to the printer
15. Proxy server – an intermediary between a network host and other hosts outside the network, provides enhanced security
16. Structured Query Language (SQL) – a language used to create and maintain professional, high performance corporate databases
17. Usenet – a collection of thousands of Internet computers, newsgroups, and members using NNTP to exchange information
18. Zone file – a file containing a set of instructions for resolving a specific domain name into its numerical IP address

Networking Technology Foundations Unit 4: Hardware & Operating System Maintenance

1. Cluster – a group of sectors used as the basic unit of data storage
2. Direct Memory Access (DMA) – a process that allows devices to bypass controllers and directly access memory
3. Disk partitioning – a way of dividing a hard disk's total storage space
4. I/O address – a memory locator that allows resources to be allocated to a system device
5. Interface – a communication channel between two components
6. Interrupt Request (IRQ) – a hardware line over which devices can send interrupt signals to the processor
7. Motherboard – the main circuit board in a computer
8. Peripheral ports – sockets on the back panel of the computer for input and output device connections
9. Planned maintenance – any scheduled maintenance procedures, including preventive maintenance
10. Power spike – a short-duration high-voltage condition
11. Resource conflict – a situation in which two or more devices share a configuration setting
12. Root directory – topmost hard disk directory
13. Trace – thin conductive path on a circuit board
14. Virtual Network Computing (VNC) – a program that allows you to control a computer at a remote location

Networking Technology Foundations Unit 5: Network Security & IT Career Opportunities

1. Account lockout – a legitimate practice in which a user account is automatically disabled after a certain number of failed authentication attempts
2. Dictionary program – a program specifically written to break into a password-protected system
3. Firewall – a secure computer system placed between a trusted network and an untrusted network
4. IP Security (Ipsec) – an authentication and encryption standard that provides security over the Internet
5. Packet sniffing – the use of protocol analyzer software to obtain sensitive information
6. Point-to-Point Tunneling Protocol (PPTP) – a protocol that allows users and corporations to securely extend their networks over the Internet using remote access servers
7. Replay attack – an attack in which packets are obtained from the network at a network host, then reused
8. Smart card – a credit card that replaces the magnetic strip with an embedded chip or storing or processing data
9. Uninterruptible Power Supply (UPS) – a power supply that uses a battery to maintain power during a power outage
10. Virus – a malicious program that replicates itself on computer systems
11. X.509 – the standard used by certificate authorities for creating digital certificates