Scope and Sequence

Information Technology

Cluster: Information Technology

Course Name: Web Technologies (One-Half to One Credit)

Course Description: Through the study of web technologies and design, students learn to make informed decisions and apply the decisions to the field of information technology.

Course Requirements: This course is recommended for students in Grades 10-12. Recommended prerequisite: Principles of Information Technology.

Recommended Equipment: Minimum Hardware/Software: 1:1 computer, 1 digital cameras, 1 scanner, 1 video camera, color duplex laser printer, black and white duplex laser printer, 1:5 graphic tablets w/software-drivers, 1:5 headphones with attached microphone, audio editing software, animation software, video editing software, graphic design software, presentation software, desktop publishing software, vector graphic creation software.

Recommended Hardware/Software: 1:1 computer, 3 digital cameras, 2 scanners, 2 video cameras, color duplex laser printer, black and white duplex laser printer, 1:3 graphic tablets w/software-drivers, 1:3 headphones with attached microphone, audio editing software, animation software, video editing software, graphic design software, presentation software, desktop publishing software, vector graphic creation software.

Best Hardware/Software: 1:1 computer, 5 digital cameras, 3 scanners, 3 video cameras, color duplex laser printer, black and white duplex laser printer, 1:1 graphic tablets w/software-drivers, 1:1 headphones with attached microphone, audio editing software, animation software, video editing software, graphic design software, presentation software, desktop publishing software, vector graphic creation software.

Units of Study	Knowledge and Skills	Student Expectations	Resources
A. Principles of Web Technology and Design 　1. Understanding the Web Design Environment 　2. Web Site Design Principles	(1) The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes	(A) identify and demonstrate positive work behaviors that enhance employability and job advancement such as regular attendance, promptness, attention to proper attire, maintenance of a clean and safe work environment, appropriate voice, and pride in work (B) identify and demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, listening attentively to speakers, and willingness to learn new knowledge and skills (C) examine the role of certifications, resumés, and portfolios in the web technology profession (D) employ effective verbal and non-verbal communication skills (E) solve problems and think critically	PWD - Ch. 1, 2, 7, 8 LWDB - Ch. 1-3, 18-19 MAM - Ch. 3 NDDB - Ch. 1-12 DFI - Ch. 2 STW - Ch. 3-5, 9, 10, 14 W21 - Ch. 4,7, 9, 15, 17,18 WOW - Ch. 9-12, 15, 16, 18 WEB1 WEB2 WEB3 WEB4 WEB7

Units of Study	Knowledge and Skills	Student Expectations	Resources
		(F) demonstrate leadership skills and function effectively as a team member (G) identify and implement proper safety procedures (H) demonstrate an understanding of legal and ethical responsibilities in relation to the field of information technology (I) demonstrate planning and time-management skills such as project management and storyboarding	WEB8 WEB9 WEB10 WEB11 WEB12 WEB13 WEB15
	(2) The student identifies employment opportunities in the information technology field with a focus in the area of interactive media	(A) identify job opportunities and accompanying job duties and tasks (B) research careers of personal interest along with the education, job skills, and experience required to achieve personal career goals (C) demonstrate an understanding of the functions of resumes and portfolios (D) create a portfolio	
	(3) The student demonstrates knowledge and appropriate use of hardware, software, and connectivity technologies	(A) explain the fundamentals of operating systems; (B) explain the key functions and applications of software programs (C) identify telecommunication and networking components (D) evaluate the various input, processing, output, and storage devices (E) identify current and future Internet protocols such as hypertext transfer protocol, file transfer protocol, telnet, and email (F) identify new web technology trends	
	(4) The student complies with practices and behaviors that meet legal and ethical responsibilities	(A) examine copyright and licensing issues in the software industry (B) model ethical and legal acquisition of digital information, including the correct citing of sources through the use of established methods (C) demonstrate proper netiquette and acceptable use policies when using networks	
	(5) The student acquires electronic information in a variety of formats, using research skills and electronic communication to create new knowledge, with appropriate supervision	(A) demonstrate appropriate use of navigation of network resources for information acquisition and sharing (B) acquire information in electronic formats such as text, audio, video, and graphics, citing the source (D) synthesize information from data acquired from electronic and telecommunication resources	

Units of Study	Knowledge and Skills	Student Expectations	Resources
	(6) The student evaluates electronic information	(A) identify appropriate methods to analyze the design and functionality of web pages (B) demonstrate skill in testing the accuracy and validity of information acquired	
	(7) The student evaluates and employs computer-based productivity tools to create and modify web and digital media designs	(A) implement functional design criteria such as proximity, repetition, contrast, alignment, color theory, consistency, image file size, and typography	

B. Scripting with HTML, XML and CSS
  1. Basic Structor of HTML
  2. Basic Structure of XML
  3. Styles to Format Web Pages
	(1) The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes	(E) solve problems and think critically	NP - All Chapters
			PWD - Ch. 6, 9-10
			LWDB - Ch. 4 - 17
			MAM - Ch. 5-15
			WOW - Ch. 16
			WEB2
			WEB13
			WEB14

	(3) The student demonstrates knowledge and appropriate use of hardware, software, and connectivity technologies	(E) identify current and future Internet protocols such as hypertext transfer protocol, file transfer protocol, telnet, and email (F) identify new web technology trends	
	(4) The student complies with practices and behaviors that meet legal and ethical responsibilities	(A) examine copyright and licensing issues in the software industry (B) model ethical and legal acquisition of digital information, including the correct citing of sources through the use of established methods (C) demonstrate proper netiquette and acceptable use policies when using networks	
	(5) The student acquires electronic information in a variety of formats, using research skills and electronic communication to create new knowledge, with appropriate supervision	(A) demonstrate appropriate use of navigation of network resources for information acquisition and sharing (B) acquire information in electronic formats such as text, audio, video, and graphics, citing the source (C) identify, create, modify, and use available file formats such as text, image, video analog and digital, and audio files (D) synthesize information from data acquired from electronic and telecommunication resources	
	(6) The student evaluates electronic information	(A) identify appropriate methods to analyze the design and functionality of web pages	

Units of Study	Knowledge and Skills	Student Expectations	Resources
	(7) The student evaluates and employs computer-based productivity tools to create and modify web and digital media designs	(A) implement functional design criteria such as proximity, repetition, contrast, alignment, color theory, consistency, image file size, and typography (B) select, create, modify, and integrate effective multimedia content such as vector-based and raster graphics, motion graphics, video, and audio (C) create web pages in accordance with current web standards using web development skills such as version control, documentation, web application security, validation, accessibility, and compatibility across multiple browsers and devices (D) demonstrate proper use of folder structure hierarchy	
	(8) The student demonstrates knowledge of Internet programming strategies	(A) recognize the importance of Internet programming standards (B) differentiate among various web coding standards such as HyperText Markup Language, Extensible HyperText Markup Language, and cascading style sheets (C) use standard applications such as text-based editing programs, word processors; and web authoring software (D) compare and contrast the impact of different browsers on web development	

C. WYSIWYG Editor
  1. Learning the Interface
  2. Create, Design and Connect Web Pages
  3. Site Management
  4. Forms
	(1) The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes	(E) solve problems and think critically	PWD - Ch. 3, 4, 7, 11
			WCRS - Dreamweaver Chapters
			WCRP - Dreamweaver Chapters
			LWDB - All Chapters
			MAM - Chapters 4-15
			NDDB - All Chapters
			WOW - Ch. 15, 16

	(3) The student demonstrates knowledge and appropriate use of hardware, software, and connectivity technologies	(A) explain the fundamentals of operating systems (B) explain the key functions and applications of software programs (C) identify telecommunication and networking components (D) evaluate the various input, processing, output, and storage devices (E) identify current and future Internet protocols such as hypertext transfer protocol, file transfer protocol, telnet, and email (F) identify new web technology trends	

Units of Study	Knowledge and Skills	Student Expectations	Resources
	(4) The student complies with practices and behaviors that meet legal and ethical responsibilities	(A) examine copyright and licensing issues in the software industry (B) model ethical and legal acquisition of digital information, including the correct citing of sources through the use of established methods (C) demonstrate proper netiquette and acceptable use policies when using networks	WEB2 WEB3 WEB4 WEB5 WEB6 WEB13 WEB14
	(5) The student acquires electronic information in a variety of formats, using research skills and electronic communication to create new knowledge, with appropriate supervision	(A) demonstrate appropriate use of navigation of network resources for information acquisition and sharing (B) acquire information in electronic formats such as text, audio, video, and graphics, citing the source (C) identify, create, modify, and use available file formats such as text, image, video analog and digital, and audio files (D) synthesize information from data acquired from electronic and telecommunication resources.	
	(6) The student evaluates electronic information	(A) identify appropriate methods to analyze the design and functionality of web pages (B) demonstrate skill in testing the accuracy and validity of information acquired	
	(7) The student evaluates and employs computer-based productivity tools to create and modify web and digital media designs	(A) implement functional design criteria such as proximity, repetition, contrast, alignment, color theory, consistency, image file size, and typography (B) select, create, modify, and integrate effective multimedia content such as vector-based and raster graphics, motion graphics, video, and audio (C) create web pages in accordance with current web standards using web development skills such as version control, documentation, web application security, validation, accessibility, and compatibility across multiple browsers and devices (D) demonstrate proper use of folder structure hierarchy	
	(8) The student demonstrates knowledge of Internet programming strategies	(A) recognize the importance of Internet programming standards (B) differentiate among various web coding standards such as HyperText Markup Language, Extensible HyperText Markup Language, and cascading style sheets	

Units of Study	Knowledge and Skills	Student Expectations	Resources
		(C) use standard applications such as text-based editing programs, word processors; and web authoring software (D) compare and contrast the impact of different browsers on web development	
	(9) The student employs knowledge of web programming to develop and maintain web applications	(E) use standard scripting languages to facilitate interactivity (F) identify characteristics of various scripting languages (G) demonstrate the ability to construct secure transaction interfaces from the web server to the customer	
	(10) The student employs knowledge of web administration to develop and maintain web applications	(A) compare the advantages and disadvantages of running a personal server versus using a server provider (B) explain how to use advanced communication protocols (C) demonstrate an understanding of and compliance with Transport Control Protocol/Internet Protocol (G) simulate the administration of web servers, including uploading and managing files (J) understand server backup and restoration of software features	
D. Web Graphics 1. Web Animation 2. Buttons and Banners 3. Plugins 4. Navigation 5. Optimization	(1) The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes	(E) solve problems and think critically (H) demonstrate an understanding of legal and ethical responsibilities in relation to the field of information technology	WCRS - All Chapters WCRP - All Chapters LWDB - Ch. 18 -19 WOW - Ch. 9, 12, 16 WEB1 WEB13
	(3) The student demonstrates knowledge and appropriate use of hardware, software, and connectivity technologies	(B) explain the key functions and applications of software programs (F) identify new web technology trends	
	(4) The student complies with practices and behaviors that meet legal and ethical responsibilities	(A) examine copyright and licensing issues in the software industry (B) model ethical and legal acquisition of digital information, including the correct citing of sources through the use of established methods (C) demonstrate proper netiquette and acceptable use policies when using networks	

Units of Study	Knowledge and Skills	Student Expectations	Resources
	(5) The student acquires electronic information in a variety of formats, using research skills and electronic communication to create new knowledge, with appropriate supervision	(A) demonstrate appropriate use of navigation of network resources for information acquisition and sharing (B) acquire information in electronic formats such as text, audio, video, and graphics, citing the source (C) identify, create, modify, and use available file formats such as text, image, video analog and digital, and audio files (D) synthesize information from data acquired from electronic and telecommunication resources	
	(7) The student evaluates and employs computer-based productivity tools to create and modify web and digital media designs	(A) implement functional design criteria such as proximity, repetition, contrast, alignment, color theory, consistency, image file size, and typography (B) select, create, modify, and integrate effective multimedia content such as vector-based and raster graphics, motion graphics, video, and audio (D) demonstrate proper use of folder structure hierarchy	

E. Building a Basic Client Website
  1. Designing for a client
  2. Developing a project plan
  3. Developing a marketing plan
  4. Creating designs that meet client requirements
  5. Providing multiple design ideas
  6. Creating design comparables
	(1) The student demonstrates the necessary skills for career development, maintenance of employability, and successful completion of course outcomes	(B) identify and demonstrate positive personal qualities such as flexibility, open-mindedness, initiative, listening attentively to speakers, and willingness to learn new knowledge and skills
		(D) employ effective verbal and non-verbal communication skills
		(F) demonstrate leadership skills and function effectively as a team member
		(H) demonstrate an understanding of legal and ethical responsibilities in relation to the field of information technology
		(I) demonstrate planning and time-management skills such as project management and storyboarding
			Student Final Portfolio: variety of books used as resources
			
			NP
			PWD
			WCRS
			WCRP
			LWDB
			MAM
			NDDB
			STW - Ch. 3-5, 9, 10, 14
			W21 - Ch. 4,7, 9, 15, 17,18
			WOW - Ch. 9-12, 15, 16, 18
			WEB1
			WEB2

	(2) The student identifies employment opportunities in the information technology field with a focus in the area of interactive media	(A) identify job opportunities and accompanying job duties and tasks (D) create a portfolio	
	(3) The student demonstrates knowledge and appropriate use of hardware, software, and connectivity technologies	(A) explain the fundamentals of operating systems; (B) explain the key functions and applications of software programs (C) identify telecommunication and networking components; (D) evaluate the various input, processing, output, and storage devices	

Units of Study	Knowledge and Skills	Student Expectations	Resources
		(E) identify current and future Internet protocols such as hypertext transfer protocol, file transfer protocol, telnet, and email (F) identify new web technology trends	WEB3 WEB4 WEB5 WEB6 WEB7
	(4) The student complies with practices and behaviors that meet legal and ethical responsibilities	(A) examine copyright and licensing issues in the software industry (B) model ethical and legal acquisition of digital information, including the correct citing of sources through the use of established methods (C) demonstrate proper netiquette and acceptable use policies when using networks	WEB8 WEB9 WEB10 WEB11 WEB12 WEB13 WEB14
	(5) The student acquires electronic information in a variety of formats, using research skills and electronic communication to create new knowledge, with appropriate supervision	(A) demonstrate appropriate use of navigation of network resources for information acquisition and sharing (B) acquire information in electronic formats such as text, audio, video, and graphics, citing the source (C) identify, create, modify, and use available file formats such as text, image, video analog and digital, and audio files (D) synthesize information from data acquired from electronic and telecommunication resources	
	(6) The student evaluates electronic information	(A) identify appropriate methods to analyze the design and functionality of web pages (B) demonstrate skill in testing the accuracy and validity of information acquired	
	(7) The student evaluates and employs computer-based productivity tools to create and modify web and digital media designs	(A) implement functional design criteria such as proximity, repetition, contrast, alignment, color theory, consistency, image file size, and typography (B) select, create, modify, and integrate effective multimedia content such as vector-based and raster graphics, motion graphics, video, and audio (C) create web pages in accordance with current web standards using web development skills such as version control, documentation, web application security, validation, accessibility, and compatibility across multiple browsers and devices (D) demonstrate proper use of folder structure hierarchy	

Units of Study	Knowledge and Skills	Student Expectations	Resources
	(8) The student demonstrates knowledge of Internet programming strategies	(A) recognize the importance of Internet programming standards (B) differentiate among various web coding standards such as HyperText Markup Language, Extensible HyperText Markup Language, and cascading style sheets (C) use standard applications such as text-based editing programs, word processors; and web authoring software (D) compare and contrast the impact of different browsers on web development	
	(9) The student employs knowledge of web programming to develop and maintain web applications	(A) explain the purpose of current web content delivery enablers (B) explain client server applications (C) articulate the advantages and disadvantages to client-side processing (D) identify security issues related to client-side processing (E) use standard scripting languages to facilitate interactivity (F) identify characteristics of various scripting languages (G) demonstrate the ability to construct secure transaction interfaces from the web server to the customer	
	(10) The student employs knowledge of web administration to develop and maintain web applications	(A) compare the advantages and disadvantages of running a personal server versus using a server provider (B) explain how to use advanced communication protocols (C) demonstrate an understanding of and compliance with Transport Control Protocol/Internet Protocol (D) identify hardware and software requirements for web servers (E) evaluate server providers (F) participate in the process of establishing a domain name (G) simulate the administration of web servers, including uploading and managing files (H) collect and analyze usage statistics	

Units of Study	Knowledge and Skills	Student Expectations	Resources
		(I) maintain documentation of the server environment such as specifications, passwords, and software versions (J) understand server backup and restoration of software features (K) propose security measures to protect web servers from electronic threats such as unauthorized access and negative intentions	
	(11) The student evaluates a problem and creates a written plan of action for meeting client requirements	(A) communicate with clients to analyze requirements to meet needs (B) document all necessary design properties (C) identify tools and resources to complete the job (D) identify and address risks (E) develop and use a timeline task list such as critical milestones, potential challenges, and interdependencies (F) use various methods to evaluate the progress of the plan and modify as necessary	
	(12) The student creates and implements a written plan of action in the development of a web product	(A) create and simulate the publication of a multipage web product using client required content and web design concepts (B) develop a test plan for a multipage web product for testing usability, effectiveness, reliability, and customer acceptance (C) explain the quality assurance process (D) develop and implement a quality assurance plan	

Resources:
Books
1423906519 Cengage Learning, Inc/Course Technology Division. New Perspectives on Blended HTML, XHTML, and CSS, 1E, 2007 (NP)
0619216662 Cengage Learning, Inc/Course Technology Division. Principles of Web Design, 3E, 2005 (PWD)
1435441982 Delmar Cengage Learning. The Web Collection Revealed Standard, 2009 (WCRS)
1435441966 Delmar Cengage Learning. The Web Collection Revealed Premium, 2009 (WCRP)
0596527527 O'Reilly Media, Inc. Learning Web Design A Beginner's Guide to (X)HTML, Style Sheets, and Web Graphics, 3E, 2007 (LWDB)
0201774224 Addison- Wesley. Maximum Accessibility: Making Your Web Site More Usable for Everyone, 2002 (MAM)
0321534040 Peachpit Press (Pearson). The Non-Designer's Design Book, 3rd Edition 2008 (NDDB)
0321555988 Peachpit Press. Digital Foundations Intro to Media Design New Riders, 1E (DFI)
1566379695 Goodheart-Wilcox Company, Inc. From School To Work, 2004 (STW)
0078280338 Glencoe/McGraw-Hill. Succeeding in the World of Work, 2003 (WOW)
0538699752 Thompson Southwestern. Working: Career Success for the 21st Century, 3E (W21)

Websites
WEB1 - http://www.thinkfinity.org
WEB2 - http://www.w3schools.com/
WEB3 - http://www.iste.org/
WEB4 - http://www.csszengarden.com/
WEB5 - http://cooltext.com/

Units of Study	Knowledge and Skills	Student Expectations	Resources
WEB6 - http://flamingtext.com/ WEB7 - http://online.onetcenter.org WEB8 - http://www.bls.gov/ WEB9 - http://www.texasbpa.com WEB10 - http://www.txskillsusa.org WEB11 - http://www.texastsa.org WEB12 - http://www.txfbla.org WEB13 - http://www.copyright.gov WEB14 - http://www.w3.org/WAI/Policy/ WEB15 - http://www.achievetexas.com/			