

# Career & Technical Education

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Course Title **110- %&'!`bHYfYhHYW bc`c[ ]Yg**

Grade Levels 11-12

Credit Value 1

Description This course provides students with a study of traditional and emerging Internet technologies. Covers topics including Internet fundamentals, Internet applications, Internet delivery systems, and Internet client/server computing. Provides a hands-on experience and some rudimentary programming in an Internet Environment

Prerequisites Computer Literacy IT, HTML Web Page Development, Web Page Design

Unit Title History of the Internet

### **National Standards**

Students understand human, cultural and societal issues related to technology and practice legal and ethical behavior  
students demonstrate a sound understanding of technology concepts, systems and operations

### **KY Academic Standards (Big Idea)**

Communication/Technology - Vocational Studies

Special communication and technology skills are needed for success in schooling and in the workplace. Students will be able to express information and ideas using a variety of technologies in various ways.

Employability Skills - Vocational Studies

Employability skills will focus on student's competencies with their work habits and academic/technical skills that will impact an individual's success in school and workplace. School-to-work transition skills will help students develop interpersonal skills and positive work habits.

Cultures and Societies - Social Studies

Culture is the way of life shared by a group of people, including their ideas and traditions. Cultures reflect the values and beliefs of groups in different ways (e.g., art, music, literature, religion); however, there are universals (e.g., food, clothing, shelter, communication) connecting all cultures. Culture influences viewpoints, rules and institutions in a global society. Students should understand that people form cultural groups throughout the United States and the World, and that issues and challenges unite and divide them.

Information, Communication and Productivity - Technology

Students demonstrate a sound understanding of the nature and operations of technology systems. Students use technology to learn, to communicate, increase productivity and become competent users of technology.  
Students manage and create effective oral, written and multimedia communication in a variety of forms and contexts.

Career Awareness, Exploration, Planning - Vocational Studies

Career awareness, exploration and planning gives students the opportunity to discover the various career areas that exist and introduce them to the realities involved with the workplace. Many factors need to be considered when selecting a career path and preparing for employment. Career awareness, exploration and planning will enable students to recognize the value of education, learn how to plan for careers and integrate academic subjects.

Research, Inquiry/Problem-Solving and Innovation - Technology

Students understand the role of technology in research and experimentation. Students engage technology in developing solutions for solving problems in the real world. Students will use technology for original creation and innovation.

### **English/Language Arts Standards**

CC.9-10.L.4 Vocabulary Acquisition and Use: Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies.

CC.9-10.L.4.a Vocabulary Acquisition and Use: Use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.

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## **Learning Targets**

## **Sample Learner Activities - Click in the box to go to Activities**

describe the history of the Internet and its impact on government, society and business	-Activity sheet - , Unit 1 - Target 1 - in resource folder
describe the protocols that make the Internet work	-Out of book, computers understanding technology, Page 284 -285 - activity sheet
describe core connectivity issues such as NAT, ISPs and IP addresses	-lecture notes on connectivity issues - Goal 1, target 3
DARPA	-Activity sheet - , Unit 1 - Target 1 - in resource folder
ARPANET	-Activity sheet - , Unit 1 - Target 1 - in resource folder
TCP/IP	-Lecture notes from connectivity issues
RFCs (Request for Comments)	-Lecture notes - activity sheet in resource folder
WWW (World Wide Web)	-Activity - students to reseach online and create a timeline of WWW from ARPANET to today

## **Technical Literacy Standards**

By the end of grades 9-12, read and comprehend science/technical texts in the grades 11-CCR text complexity band independently and proficiently.

Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

**Course Title 110917 - Internet Technologies**

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Prerequisites Computer Literacy IT, HTML Web Page Development, Web Page Design

Unit Title Internet Organization and Governing Bodies

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students demonstrate a sound understanding of technology concepts, systems and operations

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Safety and Ethical/Social Issues - Technology

Students understand safe and ethical/social issues related to technology. Students practice and engage in safe, responsible and ethical use of technology. Students develop positive attitudes toward technology use that supports lifelong learning, collaboration, personal pursuits and productivity.

Communication/Technology - Vocational Studies

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**Learning Targets****Sample Learner Activities - Click in the box to go to Activities**

describe the models used to organize Internet technologies	-i.e. OSI model - 7 layers - have students trace an email from creation to receipt using the OSI model
explain how the Internet is governed and the standards that are used	-lecture - powerpoint slides - in resource folder
World Wide Web Consortium (W3C)	-Have students research, create a powerpoint on facts including a graph of data, making presentation to class
NIC, InterNIC, IANA and ICANN	-Have students research, create a powerpoint on facts including a graph of data, making presentation to class
Truth in Domain Names Act	-Have students research, create a powerpoint on facts including a graph of data, making presentation to class
PROTECT Act of 2003	-Have students research, create a powerpoint on facts including a graph of data, making presentation to class

## **Technical Literacy Standards**

Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

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Unit Title Internet Technologies

### **National Standards**

Students demonstrate creative thinking, construct knowledge and develop innovative products and processes using technology

students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others

students apply digital tools to gather, evaluate and use information

student use critical thinking skills to plan and conduct research, manage projects, solve problems and make informed decisions using appropriate digital tools and resources

students understand human, cultural and societal issues related to technology and practice legal and ethical behavior

students demonstrate a sound understanding of technology concepts, systems and operations

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CC.9-10.SL.5 Presentation of Knowledge and Ideas: Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

CC.11-12.SL.5 Presentation of Knowledge and Ideas: Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

## **Learning Targets**

Use Internet technologies for data transfer, remote access, information delivery, email, content presentation and real-time collaboration

FTP, Remote Access, Email, Blogs, Twitter, Wikis

Multimedia, Streaming Video, Video Conferencing

News groups, data feeds, listservs, and podcasts

Encryption

## **Sample Learner Activities - Click in the box to go to Activities**

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Prerequisites Computer Literacy IT, HTML Web Page Development, Web Page Design

Unit Title E-commerce

### **National Standards**

students apply digital tools to gather, evaluate and use information

students use critical thinking skills to plan and conduct research, manage projects, solve problems and make informed decisions using appropriate digital tools and resources

students understand human, cultural and societal issues related to technology and practice legal and ethical behavior

students demonstrate a sound understanding of technology concepts, systems and operations

### **KY Academic Standards (Big Idea)**

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### **Mathematics Standards**

CC.9-12.S.MD.5b (+) Evaluate and compare strategies on the basis of expected values. For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.\*

## **Learning Targets**

describe how the Internet is used for e-commerce

search engines and web site marketing

online shopping and security (SSL and certificates)

## **Sample Learner Activities - Click in the box to go to Activities**

-Review e-commerce - have students write their top 10 shopping sites on the Internet - compare and contrast as a group - create a top 5 e-commerce sites to share with peers

-Discussion various search engines, debate which engines are better.

-Use the list from Target 1 and discuss the good and bad ways of marketing, what catches your attention and what would determine if you bought the product

-Activity - ask the following questions: 1) what are the disadvantages of online shopping? 2) What is SSL and certificates? 3) Do these always work? 4) Give examples i.e. giving personal information

## **Technical Literacy Standards**

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Prerequisites Computer Literacy IT, HTML Web Page Development, Web Page Design

Unit Title Creating and Registering a Web Site

### **National Standards**

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## **Learning Targets**

Describe Internet naming conventions, URLs and web server file organizations

## **Sample Learner Activities - Click in the box to go to Activities**

-Have group discussion to see how many types of web site naming conventions?

-Do a search to see how many was missed?

-Instructor to discuss URLs and web server file organizations

Obtaining a domain name

-Why is a domain name needed? What is a domain registry? Give three examples: such as GoDaddy (can't use)

-Activity - come up with a unique name that is currently not used - this will require some reseach and thinking.

common web servers and services

-Review from prior activity and discuss services for various domains

web server organization

-Instructor to review web server organization material - depending on time, a 2010 server could be observed using a virtual lab

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Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

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Prerequisites Computer Literacy IT, HTML Web Page Development, Web Page Design

Unit Title Creating and Publishing Web Content

### **National Standards**

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students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others

students apply digital tools to gather, evaluate and use information.

students use critical thinking skills to plan and conduct research, manage projects, solve problems and make informed decisions using appropriate digital tools and resources

students understand human, cultural and societal issues related to technology and practice legal and ethical behavior

students demonstrate a sound understanding of technology concepts, systems and operations

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CC.11-12.SL.5 Presentation of Knowledge and Ideas: Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

## **Learning Targets**

create and publish simple web content using basic HTML (Hypertext Markup Language)

HTML Usage, HTML Tags

Creating a web page

Web site organization

Publishing a web page

## **Sample Learner Activities - Click in the box to go to Activities**

-Have class discussion on basic HTML

-Activity - show source code - use Notepad to create and display

-use your Notepad work to display on the Internet - students would have created a simple web page

-show more tags and then look at organization of source code versus Notepad

-Go to MS Word, and create and save page as Web Page - discuss other means of publishing and charges and various protocol

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Unit Title Client-side and Server-side Programming

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### **Learning Targets**

### **Sample Learner Activities - Click in the box to go to Activities**

use existing scripting applications

create simple client/server applications to enhance information delivery

Client-side programming using JavaScript or other client-side programming language

server-side programming using ASP, PHP, PERL, or other server-side programming language

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