Web Development and Administration

ACADEMIC SKILLS

AA SPEAKING AND LISTENING

AA1 Utilize effective verbal and non-verbal communication skills

AA2 Participate in conversation, discussion, and group presentations

AA3 Communicate and follow directions/procedures

AA4 Communicate effectively with customers and co-workers

AB READING AND WRITING

AB1 Locate and interpret written information

AB2 Read and interpret workplace documents

AB3 Identify relevant details, facts, and specifications

AB4 Record information accurately and completely

AB5 Demonstrate competence in organizing, writing, and editing using correct vocabulary, spelling, grammar, and punctuation

AB6 Demonstrate the ability to write clearly and concisely using industry specific terminology

AC CRITICAL THINKING AND PROBLEM SOLVING

AC1 Utilize critical-thinking skills to determine best options/outcomes (e.g., analyze reliable/unreliable sources of information, use previous experiences, implement crisis management, develop contingency planning)

AC2 Utilize innovation and problem-solving skills to arrive at the best solution for current situation

AC3 Implement effective decision-making skills

AD MATHEMATICS

AD1 Perform basic and higher level math operations (e.g., addition, subtraction, multiplication, division, decimals, fractions, units of conversion, averaging, percentage, proportion, ratios)

AD2 Solve problems using measurement skills (e.g., distance, weight, area, volume)

AD3 Make reasonable estimates

AD4 Use tables, graphs, diagrams, and charts to obtain or convey information

AD5 Use deductive reasoning and problem-solving in mathematics

AE FINANCIAL LITERACY

AE1 Locate, evaluate, and apply personal financial information

AE2 Identify the components of a budget and how one is created

AE3 Set personal financial goals and develop a plan for achieving them

AE4 Use financial services effectively

AE5 Demonstrate ability to meet financial obligations

AF INTERNET USE AND SECURITY

AF1 Recognize the potential risks associated with Internet use

AF2 Identify and apply Internet security practices (e.g., password security, login, logout, log off, lock computer)

AF3 Practice safe, legal, and responsible use of technology in the workplace

AG INFORMATION TECHNOLOGY

AG1 Use technology appropriately to enhance professional presentations

AG2 Demonstrate effective and appropriate use of social media

AG3 Identify ways social media can be used as marketing, advertising, and data gathering tools

AH TELECOMMUNICATIONS

AH1 Select and use appropriate devices, services, and applications to complete workplace tasks

AH2 Demonstrate appropriate etiquette when using e-communications (e.g., cell phone, e-mail, personal digital assistants, online meetings, conference calls)

EMPLOYABILITY SKILLS

EA POSITIVE WORK ETHIC

EA1 Demonstrate enthusiasm and confidence about work and learning new tasks

EA2 Demonstrate consistent and punctual attendance

EA3 Demonstrate initiative in assuming tasks

EA4 Exhibit dependability in the workplace

EA5 Take and provide direction in the workplace

EA6 Accept responsibility for personal decisions and actions

EB INTEGRITY

EB1 Abide by workplace policies and procedures

EB2 Demonstrate honesty and reliability

EB3 Demonstrate ethical characteristics and behaviors

EB4 Maintain confidentiality and integrity of sensitive company information

EB5 Demonstrate loyalty to the company

EC SELF-REPRESENTATION

EC1 Demonstrate appropriate dress and hygiene in the workplace

EC2 Use language and manners suitable for the workplace

EC3 Demonstrate polite and respectful behavior toward others

EC4 Demonstrate personal accountability in the workplace

EC5 Demonstrate pride in work

ED TIME, TASK, AND RESOURCE MANAGEMENT

ED1 Plan and follow a work schedule

ED2 Work with minimal supervision

ED3 Work within budgetary constraints

ED4 Demonstrate ability to stay on task to produce high quality deliverables on time

EE DIVERSITY AWARENESS

EE1 Recognize diversity, discrimination, harassment, and equity

EE2 Work well with all customers and co-worker

EE3 Explain the benefits of diversity within the workplace

EE4 Explain the importance of respect for feelings, values, and beliefs of others

EE5 Identify strategies to bridge cultural/generational differences and use differing perspectives to increase overall quality of work

EE6 Illustrate techniques for eliminating gender bias and stereotyping in the workplace

EE7 Identify ways tasks can be structured to accommodate the diverse needs of workers

EE8 Recognize the challenges and advantages of a global workforce

EF TEAMWORK

EF1 Recognize the characteristics of a team environment and conventional workplace

EF2 Contribute to the success of the team

EF3 Demonstrate effective team skills and evaluate their importance in the workplace (e.g., setting goals, listening, following directions, questioning, dividing work)

EG CREATIVITY AND RESOURCEFULNESS

EG1 Contribute new ideas

EG2 Stimulate ideas by posing questions

EG3 Value varying ideas and opinions

EG4 Locate and verify information

EH CONFLICT RESOLUTION

EH1 Identify conflict resolution skills to enhance productivity and improve workplace relationships

EH2 Implement conflict resolution strategies and problem-solving skills

EH3 Explain the use of documentation and its role as a component of conflict resolution

EI CUSTOMER/CLIENT SERVICE

EI1 Recognize the importance of and demonstrate how to properly acknowledge customers/clients

EI2 Identify and address needs of customers/clients

EI3 Provide helpful, courteous, and knowledgeable service

EI4 Identify appropriate channels of communication with customers/clients (e.g., phone call, face-to-face, e-mail, website)

EI5 Identify techniques to seek and use customer/client feedback to improve company services

EI6 Recognize the relationship between customer/client satisfaction and company success

EJ ORGANIZATIONS, SYSTEMS, AND CLIMATES

EJ1 Define profit and evaluate the cost of conducting business

EJ2 Identify "big picture" issues in conducting business

EJ3 Identify role in fulfilling the mission of the workplace

EJ4 Identify the rights of workers (e.g., adult and child labor laws and other equal employment opportunity laws)

EJ5 Recognize the chain of command, organizational flow chart system, and hierarchy of management within an organization

EK JOB ACQUISITION AND ADVANCEMENT

EK1 Recognize the importance of maintaining a job and pursuing a career

EK2 Define jobs associated with a specific career path or profession

EK3 Identify and seek various job opportunities (e.g., volunteerism, internships, co-op, part-time/full-time employment)

EK4 Prepare a resume, letter of application, and job application

EK5 Prepare for a job interview (e.g., research company, highlight personal strengths, prepare questions, set-up a mock interview, dress appropriately)

EK6 Participate in a job interview

EK7 Explain the proper procedure for leaving a job

EL LIFELONG LEARNING

EL1 Acquire current and emerging industry-related information

EL2 Demonstrate commitment to learning as a life-long process and recognize learning opportunities

EL3 Seek and capitalize on self-improvement opportunities

EL4 Discuss the importance of flexible career planning and career self-management

EL5 Employ leadership skills to achieve workplace objectives (e.g., personal vision, adaptability, change, shared vision)

EL6 Recognize the importance of job performance evaluation and coaching as it relates to career advancement

EL7 Accept and provide constructive criticism

EL8 Describe the impact of the global economy on jobs and careers

EM JOB SPECIFIC TECHNOLOGIES

EM1 Identify the value of new technologies and their impact on driving continuous change and the need for life-long learning

EM2 Research and identify emerging technologies for specific careers

EM3 Select appropriate technological resources to accomplish work

EN HEALTH AND SAFETY

EN1 Assume responsibility for safety of self and others

EN2 Follow safety guidelines in the workplace

EN3 Manage personal health and wellness

OCCUPATIONAL SKILLS

OA IMPACTS OF COMPUTING

OA1 Reduce bias and equity deficits through the design of accessible computational artifacts

OA2 Evaluate and assess how computing impacts personal, ethical, social, economic and cultural practices

OA3 Research how computational innovations that have revolutionized aspects of our culture might have evolved from a need to solve a problem

OA4 Explain the beneficial and harmful effects that laws governing data (e.g., intellectual property, privacy) can have on innovation

OA5 Evaluate and design computational artifacts to maximize their benefit to society

OA6 Evaluate the impact of the digital divide (i.e., inequity of computing access, education, influence) on the development of local communities and society

OA7 Demonstrate ways computational design (i.e., algorithms, abstractions, analysis) can apply to problems across disciplines

OA8 Debate laws and regulations that impact the development and use of software and the protection of privacy

OB PROJECT MANAGEMENT

OB1 Identify and empathize with user problems, needs and establish goals to meet those needs

OB2 Demonstrate knowledge of scope management to control project schedule, estimate project cost and conduct planning

OB3 Identify tools and resources for the project

OB4 Identify critical milestones

OB5 Report project status

OC COMPUTING SYSTEMS

OC1 Explain how abstractions hide the underlying implementation details of computing systems embedded in everyday objects

OC2 Develop guidelines that convey systematic troubleshooting strategies that others can use to identify and fix errors

OD DATA AND ANALYSIS

OD1 Collect data using appropriate data collection tools and techniques to support a claim or to communicate information

OD2 Create interactive data visualizations using software tools to help others better understand real-world phenomena

OD3 Evaluate the ability of models and simulations to test and support the refinement of hypotheses

OD4 Understand and design database structures to optimize search and retrieval

OD5 Evaluate the tradeoffs in how data elements are organized and where data is stored

OD6 Explain the privacy concerns related to the collection and generation of data

OD7 Use data analysis tools (e.g., formulas, other software data / statistical tools) to process and transform the data to make it more useful and reliable

OD8 Use data analysis tools and techniques to identify patterns and analyze data represented in complex systems

OD9 Create computational models that represent the relationships among different elements of data

OE ALORITHMS AND PROGRAMMING

OE1 Use and adapt classic algorithms to solve computational problems

OE2 Evaluate algorithms in terms of their efficiency, correctness and clarity

OE3 Compare and contrast fundamental data structures and their uses

OE4 Illustrate the flow of execution of a recursive algorithm

OE5 Construct solutions to problems using student-created components (e.g., procedures, modules, objects)

OE6 Analyze a large-scale computational problem and identify generalizable patterns that can be applied to a solution

OE7 Select and employ an appropriate component or library to facilitate programming solutions

OE8 Use a development process in creating a computational artifact that leads to a minimum viable product followed by reflection, analysis and iteration

OE9 Use functions, data structures or objects to simplify solutions, generalizing computational problems instead of repeated use of simple variables

OE10 Design and iteratively develop event-driven computational artifacts for practical intent, personal expression, or to address a societal issue

OE11 Decompose problems into smaller components through systematic analysis using constructs (e.g., procedures, modules, objects)

OE12 Create prototypes that use algorithms to solve computational problems by leveraging prior student knowledge and personal interests

OE13 Create artifacts by using procedures within a program, combinations of data and procedures, or independent but interrelated programs

OE14 Evaluate and refine computational artifacts to make them more usable and accessible using systematic testing and debugging

OE15 Systematically design and develop programs for broad audiences by incorporating feedback from users

OE16 Design and develop computational artifacts working in team roles using collaborative tools

OE 17 Describe how artificial intelligence drives many software and physical systems

OE18 Use version control systems, integrated development environments (IDEs) and collaborative tools and practices (code documentation) in a group software project

OE19 Modify an existing program to add additional functionality and discuss intended and unintended implications (e.g., introducing errors)

OE20 Evaluate key qualities (i.e., correctness, usability, readability, efficiency) of a program

OE21 Compare multiple programming languages and discuss how their features make them suitable for solving different types of problems

OE22 Justify the selection of specific control structures when tradeoffs involve implementation, readability and program performance and explain the benefits and drawbacks of choices made

OE23 Develop programs for multiple computing platforms

OF NETWORKS AND THE INTERNET

OF1 Give examples to illustrate how sensitive data can be affected by viruses, malware and other attacks

OG WEB DESIGN FUNDAMENTALS

OG1 Define basic web design vocabulary

OG2 Explain the workflow and production processes of web design

OG3 Describe principles of graphic and content creation for online media

OG4 Apply principles of design, (e.g., color theory and schemes, proximity, alignment, repetition, web graphics, optimization, typography) identify technical contraints, and create sample designs showing placement of buttons/navigational graphics and suggested color scheme

OG5 Identify task appropriate software tools

OG6 Describe attributes of the Web as a unique medium

OG7 Use industry standard layout and design principles

OG8 Define and create storyboards/thumbnails

OG9 Demonstrate web site accessibility and device standards such as 508 (The legislation referred to as "Section 508" is actually an amendment to the Workforce Rehabilitation Act of 1973. The amendment was signed into law by President Clinton on August 7, 1998. Section 508 requires that electronic and information technology that is developed by or purchased by the Federal Agencies be accessible by people with disabilities. The 1986 version of Section 508 established non-binding guidelines for technology accessibility while the 1998 version created binding, enforceable standards that are incorporated into the Federal Procurement process. In addition to providing for enforceable standards, the amended Section 508 established a complaint procedure and reporting requirements, which further strengthen the law.

OG10 Demonstrate industry standard skills necessary for web design careers

OG11 List procedures to capture images with a digital camera

OG12 Distinguish between digital photography techniques

OG13 Identify industry standard tags

OG14 Demonstrate basic coding of Hypertext Mark-up Language (HTML) and multiple HTML areas

OG15 Identify major file types that can be incorporated within web documents

OG16 Explain the pros and cons of web editors

OG17 Identify the use of tables in a web document

OG18 Compare and contrast advantages and disadvantages of emerging technologies

OG19 Demonstrate knowledge of transfer protocols (e.g., FTP, Web Development)

OG20 Demonstrate knowledge of CSS and use appropriate CSS techniques

OG21 Select and use appropriate software tools demonstrating proficiency in the use of digital imaging, digital video techniques and equipment

OG22 Demonstrate knowledge of available graphics, video, motion graphics, web software programs and available project management/collaborative tools

OH ADVANCED INTERACTIVE DESIGN

OH1 Identify web animation techniques

OH2 Demonstrate web site publishing and hosting

OH3 Identify web navigation standards (e.g., consistent, functioning, hierarchy)

OH4 Identify methods for incorporating and creating media for use on websites

OH5 Identify methods to add forms, applets and tables to a web document

OH6 Explain the function of a web server

OH7 Collect and analyze usage statistics

OI INDUSTRY CERTIFICATION

OI1 Describe the process and requirements for obtaining industry certification related to web development and administration

OJ CAREER PATHWAYS IN WEB DEVELOPMENT AND ADMINISTRATION

OJ1 Identify careers in the web development and administration field

OJ2 Search the Internet and other sources for job opportunities

OJ3 Assemble a professional portfolio that contains representative samples of student's work

OJ4 Deliver an oral presentation relating to the professional portfolio