CompuScholar, Inc.

Alignment to Ohio **"Information Technology"** Course Standards

Ohio Course Details:

Course Name:	Information Technology
Course Code(s):	145005
Credit:	1
Grade Level:	7th-12th
State Standards Link:	http://education.ohio.gov/Topics/Career-Tech/Information-Technology-Career-Field

CompuScholar Course Details:

Course Title:	Digital Savvy
Course ISBN:	978-0-9887070-8-5
Course Year:	2019

Note 1: Citation(s) listed may represent a subset of the instances where objectives are met throughout the course.

Note 2: Citation(s) for a "Lesson" refer to the "Lesson Text" elements and associated "Activities" within the course, unless otherwise noted. The "Instructional Video" components are supplements designed to introduce or re-enforce the main lesson concepts, and the Lesson Text contains full details.

Course Description

This first course in the IT career field is designed to provide students with a working knowledge of computer concepts and essential skills necessary for work and communication in today's society. Students will learn safety, security, and ethical issues in computing and social networking. Students will also learn about input/output systems, computer hardware and operating systems, and office applications.

Course Standards

Strand 1.0 - Business Operations/21st Century Skills	
Learners apply principles of economics, business management, marketing, and employability in an entrepreneur, manager, and employee role to the leadership, planning, developing, and analyzing of business enterprises related to the career field.	
(1.1) Employability Skills: Develop career awareness and employability skills (e.g., face-to-face, online) needed for gaining and maintaining employment in diverse business settings.	**CITATION(S)**
(1.1.1) Identify the knowledge, skills, and abilities necessary to succeed in careers.	Chapter 13, Lesson 1 Chapter 24, Lesson 1 Chapter 24, Lesson 2
(1.1.2) Identify the scope of career opportunities and the requirements for education, training, certification, licensure, and experience.	Chapter 24, Lesson 1

(1.1.3) Develop a career plan that reflects career interests, pathways, and secondary and postsecondary options.	Chapter 24, Lesson 1 Chapter 24 Activity
(1.1.4) Describe the role and function of professional organizations, industry associations, and organized labor and use networking techniques to develop and maintain professional relationships.	Chapter 24, Lesson 1
(1.1.5) Develop strategies for self-promotion in the hiring process (e.g., filling out job applications, résumé writing, interviewing skills, portfolio development).	Chapter 24, Lesson 1 Chapter 24 Activity
(1.1.6) Explain the importance of work ethic, accountability, and responsibility and demonstrate associated behaviors in fulfilling personal, community, and workplace roles.	Chapter 13, Lesson 1 Chapter 24, Lesson 2 Chapters 14 and 25
(1.1.7) Apply problem-solving and critical-thinking skills to work-related issues when making decisions and formulating solutions.	Chapters 13, 14, 25
(1.1.8) Identify the correlation between emotions, behavior, and appearance and manage those to establish and maintain professionalism.	Chapter 13, Lesson 1 Chapter 24, Lesson 2
(1.1.9) Give and receive constructive feedback to improve work habits.	Chapter 24, Lesson 3
(1.1.10) Adapt personal coping skills to adjust to taxing workplace demands.	Chapter 24, Lesson 3
(1.1.11) Recognize different cultural beliefs and practices in the workplace and demonstrate respect for them.	Chapter 24, Lesson 2
(1.1.12) Identify healthy lifestyles that reduce the risk of chronic disease, unsafe habits, and abusive behavior.	Chapter 24, Lesson 2

(1.2) Leadership and Communications: Process, maintain, evaluate, and disseminate information in a business. Develop leadership and team building to promote collaboration.	**CITATION(S)**
(1.2.1) Extract relevant, valid information from materials and cite sources of information.	Chapter 7, Lesson 3 Chapters 14 and 25
(1.2.2) Deliver formal and informal presentations.	Chapter 11 (all lessons) Plus, students have opportunities to present activity results throughout the course.
(1.2.3) Identify and use verbal, nonverbal, and active listening skills to communicate effectively.	Chapter 13, Lesson 1 Chapter 24, Lesson 2 Chapters 14 and 25
(1.2.4) Use negotiation and conflict-resolution skills to reach solutions.	Chapter 13, Lesson 3
(1.2.5) Communicate information (e.g., directions, ideas, vision, workplace expectations) for an intended audience and purpose.	Chapter 13, Lesson 1 Chapter 13, Lesson 2 Chapters 14 and 25
(1.2.6) Use proper grammar and expression in all aspects of communication.	Students have extensive writing and communication opportunities in activities throughout the course.

(1.2.7) Use problem-solving and consensus-building techniques to draw conclusions and determine next steps.	Chapter 13 (all lessons) Chapters 14 and 25
(1.2.8) Identify the strengths, weaknesses, and characteristics of leadership styles that influence internal and external workplace relationships.	Chapter 13, Lesson 1
(1.2.9) Identify advantages and disadvantages involving digital and/or electronic communications (e.g., common content for large audience, control of tone, speed, cost, lack of non-verbal cues, potential for forwarding information, longevity).	Chapter 16 (all lessons)
(1.2.10) Use interpersonal skills to provide group leadership, promote collaboration, and work in a team.	Chapter 13, Lesson 1 Chapter 13, Lesson 2 Chapters 14 and 25
(1.2.11) Write professional correspondence, documents, job applications, and résumés.	Chapter 9, Activities 1 and 2 Chapter 24, Lesson 1 Chapter 24 Activity
(1.2.12) Use technical writing skills to complete forms and create reports.	Chapter 3 Activity Chapters 14 and 25
(1.2.13) Identify stakeholders and solicit their opinions.	N/A
(1.2.14) Use motivational strategies to accomplish goals.	Chapter 13, Lesson 1

(1.3) Business Ethics and Law: Analyze how professional, ethical, and legal behavior contributes to continuous improvement in organizational performance and regulatory compliance.	**CITATION(S)**
(1.3.1) Analyze how regulatory compliance affects business operations and organizational performance.	Chapter 24, Lesson 3
(1.3.2) Follow protocols and practices necessary to maintain a clean, safe, and healthy work environment.	Chapter 24, Lesson 3
(1.3.3) Use ethical character traits consistent with workplace standards (e.g., honesty, personal integrity, compassion, justice).	Chapter 24, Lesson 2
(1.3.4) Identify how federal and state consumer protection laws affect products and services.	Chapter 24, Lesson 3
(1.3.5) Access and implement safety compliance measures (e.g., quality assurance information, safety data sheets [SDSs], product safety data sheets [PSDSs], United States Environmental Protection Agency [EPA], United States Occupational Safety and Health Administration [OSHA]) that contribute to the continuous improvement of the organization.	Chapter 24, Lesson 3
(1.3.6) Identify deceptive practices (e.g., bait and switch, identity theft, unlawful door-to-door sales, deceptive service estimates, fraudulent misrepresentations) and their overall impact on organizational performance.	Chapter 24, Lesson 2
(1.3.7) Identify the labor laws that affect employment and the consequences of noncompliance for both employee and employer (e.g., harassment, labor, employment, employment interview, testing, minor labor laws, Americans with Disabilities Act, Fair Labor Standards Acts, Equal Employment Opportunity Commission [EEOC]).	N/A

(1.3.8) Verify compliance with computer and intellectual property laws and regulations.	Chapter 8, Lesson 2 Chapter 8, Lesson 4 Chapter 8, Lesson 5
(1.3.9) Identify potential conflicts of interest (e.g., personal gain, project bidding) between personal, organizational, and professional ethical standards.	Chapter 24, Lesson 2

(1.4) Knowledge Management and Information Technology: Demonstrate current and emerging strategies and technologies used to collect, analyze, record, and share information in business operations.	**CITATION(S)**
(1.4.1) Use office equipment to communicate (e.g., phone, radio equipment, fax machine, scanner, public address systems).	N/A
(1.4.2) Select and use software applications to locate, record, analyze, and present information (e.g., word processing, e-mail, spreadsheet, databases, presentation, Internet search engines).	Chapters 7, 9, 10, 11, 12, 15, 16
(1.4.3) Verify compliance with security rules, regulations, and codes (e.g., property, privacy, access, accuracy issues, client and patient record confidentiality) pertaining to technology specific to the industry pathway.	Chapter 8, Lesson 4 Chapters 16, 17, 18
(1.4.4) Use system hardware to support software applications.	Chapter 1, Lesson 3 Chapter 2, Lesson 4
(1.4.5) Use information technology tools to maintain, secure, and monitor business records.	N/A
(1.4.6) Use an electronic database to access and create business and technical information.	Chapter 12 (all lessons)
(1.4.7) Use personal information management and productivity applications to optimize assigned tasks (e.g., lists, calendars, address books).	Supplemental Chapter 3, Lesson 4
(1.4.8) Use electronic media to communicate and follow network etiquette guidelines.	Chapter 8, Lesson 4 Chapters 16, 17, 18

Strand 2.0 - IT Fundamentals	
Learners apply fundamental principles of IT, including the history of IT and its impact on society, common industry terms, systems theory, information storage and retrieval, database management, and computer hardware, software, and peripheral device configuration and installation. This base of knowledge and skills may be applied across the career field.	
(2.1) Security, Risks, and Safeguards: Describe the need for security and explain security risks and security safeguards.	**CITATION(S)**
(2.1.1) Explain the need for confidentiality, integrity, and availability (CIA) of information.	Chapter 8, Lesson 2
(2.1.2) Describe authentication, authorization, and auditing..	Chapter 8, Lesson 2
(2.1.3) Describe multilevel security.	Chapter 8, Lesson 2
(2.1.4) Identify security risks and describe associated safeguards and methodologies (e.g., auditing).	Chapter 8, Lesson 1 Chapter 8, Lesson 2 Chapter 8, Lesson 3

(2.1.5) Describe major threats to computer systems (e.g., internal threats, viruses, worms, spyware, malware, ransomware, spoofing, hacking).	Chapter 8, Lesson 1
(2.1.6) Describe the components of the physical environment (e.g., wiring closets, server rooms) and physical security systems.	Chapter 8, Lesson 2
(2.1.7) Describe the need for security in networking.	Chapter 8, Lesson 3
(2.1.8) Describe the need for security in application development.	Chpater 8, Lesson 3
(2.1.9) Track and catalogue physical assets.	N/A
(2.1.10) Describe computer forensics, its importance in information security and cybersecurity, and its relevance to law enforcement.	N/A
(2.1.11) Identify the need for personal security in digital information and describe how personal information can be safeguarded.	Chapter 8, Lesson 1 Chapter 18, Lesson 4
(2.1.12) Practice information security per job requirements.	Chapter 8, Lessons 1 - 3
(2.1.13) Describe privacy security compliance on systems (e.g., Health Insurance Portability and Accountability Act [HIPAA], Payment Card Industry [PCI], Sarbanes-Oxley Act [SOX], Americans with Disabilities Act [ADA]).	Chapter 8, Lesson 1 Chapter 8, Lesson 2

(2.2) Networking Fundamentals: Apply networking fundamentals to infrastructure systems.	**CITATION(S)**
(2.2.1) Differentiate between Local Area Networks (LANs), Wide Area Networks (WANs), Wireless Local Area Networks (WLANs), and Near Field Communication (NFC).	Chapter 6, Lesson 2 Chapter 6, Lesson 4
(2.2.2) Select the basic point-to-point (PTP) and point-to-multipoint (PTMP) network topologies (e.g., star, ring, tree, network, mesh, irregular) and broadband and baseband transmission methods.	Chapter 6, Lesson 1 Chapter 6, Lesson 2
(2.2.3) Select network storage techniques (e.g., fiber channel, Internet Small Computer System Interface [iSCSI], Internet Protocol [IP], Fiber Channel over Ethernet [FCoE], Serial Attached SCSI [SAS], Network File Systems [NFS], Network Attached Storage /Server Message Blocks [NAS/SMB], Redundant Array of Inexpensive Disks [RAID]).	N/A
(2.2.4) Differentiate between the Internet, intranets, and extranets.	Chapter 6, Lesson 2 Chapter 6, Lesson 4
(2.2.5) Identify and apply Transmission Control Protocol and Internet Protocol (TCP/IP), Internet Protocol Version 4 (IPv4), Internet Protocol Version 6 (IPv6) applications and services (e.g., rlogin, Simple Mail Transfer Protocol [SMTP], Telecommunications Network [Telnet], File Transfer Protocol [FTP], Domain Name System [DNS], Network File System [NFS], Voice over Internet Protocol [VoIP], Internet Control Message Protocol [ICMP]).	Chapter 6, Lesson 3 Chapter 6, Lesson 5 Chapter 6, Lesson 6 Chapter 16, Lesson 1 Chapter 16, Lesson 3
(2.2.6) Differentiate between cable types (e.g., fiber optic, twisted pair, coaxial) and interfaces.	Chapter 6, Lesson 1

(2.2.7) Identify the top-level domains (e.g., .gov, .com, .edu).	Chapter 6, Lesson 5
(2.2.8) Describe the characteristics and uses of networks, network devices, and components (e.g., hubs, switches, routers, firewalls).	Chapter 6, Lesson 1

(2.3) Data Encoding: Explain and describe data encoding basics.	**CITATION(S)**
(2.3.1) Identify and explain coding information and representation of characters (e.g., American Standard Code for Information Interchange [ASCII], Extended Binary Coded Decimal Interchange Code [EBCDIC],	Supplemental Chapter 2, Lesson 3
(2.3.2) Convert between numbering systems (e.g., binary, hexadecimal, decimal).	Supplemental Chapter 2, Lesson 1

(2.4) Emerging Technologies: Identify trending technologies, their fundamental architecture, and their value in the marketplace.	**CITATION(S)**
(2.4.1) Investigate the scope and the impact of mobile computing environments on society.	Chapter 2, Lesson 5
(2.4.2) Describe the differences, advantages, and limitations of cloud computing (e.g., public cloud, private cloud, hybrid cloud) and on-premises computing.	Chapter 2, Lesson 5
(2.4.3) Utilize cloud computing applications (e.g. services, applications, virtual environments).	Chapters 9, 10, 11
(2.4.4) Describe emerging technologies (e.g., Bring your Own Device [BYOD], Services Virtualization, Augmented Reality [AR], SMART Devices, Additive Manufacturing [3D Printing]).	Chapter 2, Lesson 5

(2.5) Operating Systems: Maintain operating systems (OSs).	**CITATION(S)**
(2.5.1) Compare Operating Systems for computer hardware (e.g. personal computers, servers, mainframes, and mobile devices).	Chapter 3, Lesson 1
(2.5.2) Describe uses and functions of virtual machines.	Chapter 3, Lesson 1
(2.5.3) Identify the properties of open and proprietary systems.	Chapter 2, Lesson 2 Chapter 3, Lesson 1
(2.5.4) Maintain file structures in an Operating Systems.	Chapter 4 (all lessons)
(2.5.5) Use system utilities to maintain an Operating Systems.	Chapter 3, Lesson 2
(2.5.6) Describe Operating System interfaces (e.g., command line, Graphic User Interface [GUI]).	Chapter 3, Lesson 1
(2.5.7) Install and test updates and patches to Operating Systems.	Chapter 5, Lesson 2

(2.6) Installation and Configuration: Install and configure hardware and software.	**CITATION(S)**
(2.6.1) Comply with license agreements for software and hardware and describe the consequences of noncompliance.	Chapter 2, Lesson 2 Chapter 8, Lesson 5
(2.6.2) Identify hardware requirements for software applications.	Chapter 2, Lesson 4
(2.6.3) Verify software compatibility and troubleshoot any software incompatibility.	Chapter 2, Lesson 4 Chapter 5, Lesson 3
(2.6.4) Install and test new software and software upgrades on stand-alone, mobile, and networked systems.	Chapter 2, Lesson 4 Chapter 3, Lesson 3 Chapter 5, Lesson 2
(2.6.5) Preserve, convert, or migrate existing data files to new format.	Chapter 9, Lessons 1-2 Chapter 10, Lessons 1-2 Chapter 11, Lessons 1-2
(2.6.6) Determine compatibility of software and hardware and resolve any conflicts.	Chapter 2, Lesson 4
(2.6.7) Install and test hardware peripherals	Chapter 1, Lesson 3 Chapter 1 Activity
(2.6.8) Document the installation and configuration of hardware and software.	Chapters 1, 2, 3 Activities Chapter 5, Lesson 3

(2.7) Web Architecture: Explain the fundamentals of delivering information and applications using web architecture.	**CITATION(S)**
(2.7.1) Describe methods of securely transmitting data.	Chapter 8, Lesson 3
(2.7.2) Describe ways to present data (e.g., mobile applications, desktop applications, web applications).	Chapters 9-12 Chapters 19-21
(2.7.3) Differentiate between a client and a server.	Chapter 6, Lesson 4
(2.7.4) Identify how the use of different browsers and devices affects the look of a webpage.	Chapter 20, Lesson 3
(2.7.5) Explain the relationship between data transmission volumes, bandwidth, and latency.	N/A
(2.7.6) Describe the characteristics and use of browser plug-ins.	N/A
(2.7.7) Compare the advantages and disadvantages of running an in-house server or using a service provider.	N/A
(2.7.8) Describe the difference between static and dynamic sites and the reasons for using each.	N/A

(2.8) Databases: Describe the fundamentals of databases.	**CITATION(S)**
(2.8.1) Identify emerging database technology (e.g., Not only Structured Query Language [NoSQL], New Structured Query Language [NewSQL], graph databases).	N/A

(2.8.2) Describe the use and purpose of a database and a Database Management System (DBMS).	Chapter 12, Lesson 1
(2.8.3) Compare and contrast databases (e.g., flat file, hierarchical, relational).	N/A
(2.8.4) Describe the elements of a database (e.g., table, record/row, field, relationships, transactions).	Chapter 12, Lesson 2
(2.8.5) Describe the elements of a database user interface (e.g., form, queries, filters, reports).	Chapter 12, Lesson 1 Chapter 12, Lesson 3 Chapter 12, Lesson 5
(2.8.6) Describe Structured Query Language (SQL).	Chapter 12, Lesson 1
(2.8.7) Describe how data can be stored in and extracted from a database.	Chapter 12, Lesson 4 Chapter 12, Lesson 5
(2.8.8) Explain the importance of data integrity and security.	N/A
(2.8.9) Differentiate between a front-end interface and a back-end database.	Chapter 12, Lesson 1

(2.9) Project Concept Proposal: Develop a project concept proposal.	**CITATION(S)**
(2.9.1) Identify and incorporate branding strategies.	N/A
(2.9.2) Determine the scope and purpose of the project.	Chapters 14 and 25
(2.9.3) Determine the target audience, client needs, expected outcomes, objectives, and budget.	Chapter 13, Lesson 2 Chapters 14 and 25
(2.9.4) Develop a conceptual model and design brief for the project.	Chapter 13, Lesson 2 Chapters 14 and 25
(2.9.5) Develop a timeline, communication plan, task breakdown, costs (e.g., equipment, labor), deliverables, and responsibilities for completion.	Chapter 13, Lesson 2 Chapters 14 and 25
(2.9.6) Develop and present a comprehensive proposal to stakeholders.	Chapter 13, Lesson 2 Chapters 14 and 25

(2.10) Equipment: Select, operate, and maintain equipment.	**CITATION(S)**
(2.10.1) Identify hardware platforms, configurations, and support models.	Chapter 1, Lesson 1
(2.10.2) Identify processor, memory, and storage requirements.	Chapter 1, Lesson 2
(2.10.3) Identify architecture requirements.	Chapter 1, Lesson 1 Chapter 1, Lesson 2
(2.10.4) Identify software application requirements.	Chapter 2, Lesson 4
(2.10.5) Prepare and operate equipment per project design specifications.	N/A

(2.10.6) Monitor equipment operation and troubleshoot issues and problems.	Chapter 5 (all lessons)
(2.10.7) Backup, restore, test, archive, and manage data.	Chapter 5, Lesson 2
(2.10.8) Prepare equipment for storage or decommissioning.	Chapter 5, Lesson 1
(2.10.9) Perform routine maintenance per manufacturer specifications.	Chapter 5, Lesson 1

(2.11) Troubleshooting: Select and apply troubleshooting methodologies for problem solving.	**CITATION(S)**
(2.11.1) Identify the problem.	Chapter 5, Lesson 3 Chapter 5 Activity
(2.11.2) Select troubleshooting methodology (e.g., top down, bottom up, follow the path, spot the differences).	Chapter 5, Lesson 3 Chapter 5 Activity
(2.11.3) Investigate symptoms based on the selected methodology.	Chapter 5, Lesson 3 Chapter 5 Activity
(2.11.4) Gather and analyze data about the problem.	Chapter 5, Lesson 3 Chapter 5 Activity
(2.11.5) Design a solution.	Chapter 5, Lesson 3 Chapter 5 Activity
(2.11.6) Test a solution.	Chapter 5, Lesson 3 Chapter 5 Activity
(2.11.7) Implement a solution.	Chapter 5, Lesson 3 Chapter 5 Activity
(2.12.8) Document the problem and the verified solution.	Chapter 5, Lesson 3 Chapter 5 Activity